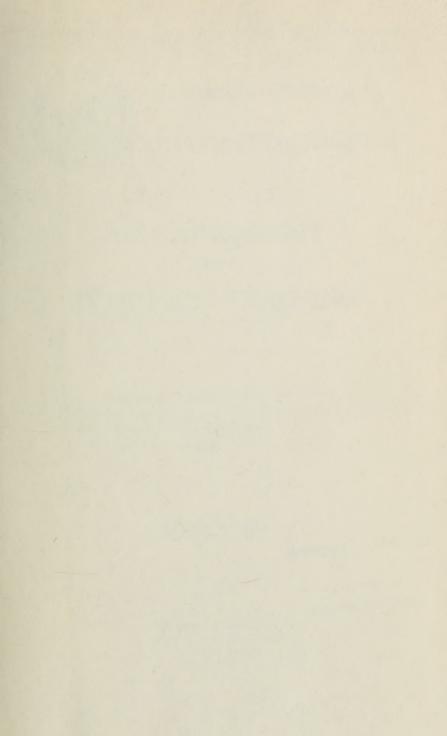
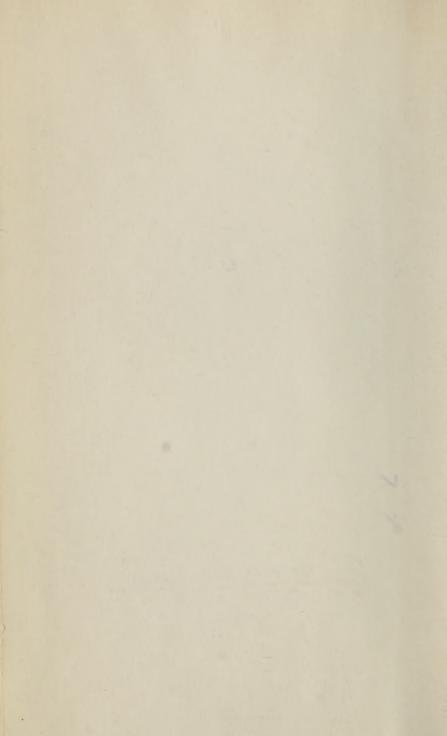




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# Columbia University Bulletin of Information

# ANNOUNCEMENT

OF

# **EXTENSION TEACHING**

- I. Collegiate Courses for Men and Women
- II. Professional and Technical Courses for Teachers
- III. Evening Technical Courses
- IV. Lecture Courses for Local Centres

1908=1909

UNIVERSITY OF ILLINOIS

Published by
Columbia University
in the City of Mew York
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New York, N. Y.

PRESIDENT'S OFFICE.

# Columbia University

### Bulletin of Information

(Issued 25 times during the Academic year, monthly in November and December, and weekly between February and June. Entered as second-class matter at the New York, N. Y., Post Office, Dec. 22, 1900, under Act of July 16, 1894.)

These include:

1. The Report of the President and Treasurer to the Trustees.

The Catalogue of the University, issued in December, 2.

The Catalogue of the University, issued in December, price 25 cents.

The Announcements of the several Colleges, Schools, and Divisions, issued in the spring, and relating to the work of the next year. These are made as accurate as possible, but the right is reserved to make changes in detail as circumstances require. The current number of any of these Announcements will be sent without charge upon application to the Secretary of the University.

# Extension Teaching

# Calendar == 1908 = 1909

- 1008-Sept.
- 16—Wednesday to Sept. 23—Tuesday, inclusive.
   Registration days for matriculated students.
   23—Wednesday. The University, including Barnard College and Teachers College, opens for the first Sept.
  - half-year. 28—Monday. Sept. Courses in Extension Teaching at the
  - University begin. 26—Thursday to Nov. 28—Saturday, both inclusive. Nov. Thanksgiving vacation. No sessions of Exten-
  - sion classes. Dec.
- sion classes.

  10—Saturday to Jany. 1, 1908—Friday, inclusive.
  Christmas vacation. Sessions of Extension classes, unless special arrangement is made by the instructor, will resume on Saturday, January 2.
  25—Monday. Mid-year examinations in Teachers College begin. First half-year examinations in Extension Teaching,—held at the usual hours, periods, and class-rooms of the sessions.
  22—Monday. Washington's Birthday. No sessions held 1900-Jany.
  - Peby. held.
  - 8—Thursday to April 12—Monday, inclusive. Easter holidays. No sessions of Extension courses unless special arrangement is made by the in-April structor.
  - 10-Monday. May Final examinations begin for candi-
  - dates for degrees and diplomas in 1909. 26—Wednesday. Commencement Day. 27—Thursday. Final examinations begin for all ex-May Thursday. Final examinations begin for all except candidates for final examinations for degrees and diplomas. May

To register in any course described in this Announcement, pp. 23-75, send for an application for registration blank. dress The Director of Extension Teaching, Teachers College, Columbia University, New York City.

EXTENSION TEAC ADMINISTRATIVE BOARD JAMES EARL RUSSELL, LL.D.,

Dean of Teachers College, Chairman

ADOLPHE COHN, LL.B., A.M., Professor of the Romance Languages and Literatures

FRANKLIN THOMAS BAKER, A.M., Professor of the English Language and Literature

> HERBERT GARDINER LORD, A.M., Professor of Philosophy

FREDERICK HENRY SYKES, PH.D., Professor of English in Extension Teaching, Director

### OFFICERS OF INSTRUCTION

# PROFESSORS

ALFRED D. F. HAMLIN .... A.B., Amherst, 1875; A.M., 1885; instructor in architecure, Columbia University, 1887-89; assistant professor, 1889-90; adjunct professor, 1890-1904; acting head of the school of architecture, 1903-; professor of the history of architecture and executive head of the school of architecture, 1904-

A.B., Columbia, 1883; A.M., 1884; L.H.D., 1885; Ph.D., 1886; LL.D., 1904; prize fellow in letters, 1883-86; assistant in English and instructor in Zend, 1886; student at Halle, 1887-89; instructor in Anglo-Saxon and the Iranian Ianguages, Columbia University, 1889-91; adjunct professor of the English language and literature, 1891-95; professor of Indo-Iranian languages, 1895-; trustee, Board of Education, Yonkers

ADOLPHE COHN.... ......Romance Languages and Literatures B. ès L., Paris, 1868; LL.B., 1873; Archiviste Paléographe (A.M.), 1874; student at the School of Law and the Ecole Nationale des Chartes; élève titulaire de l'Ecole Pratique des Hautes Etudes (Section des Sciences Historiques et Philologiques), Paris, 1868-75; tutor in French, Columbia College, March-June, 1882; instructor, 1882-84; instructor in French, Harvard University, 1884-85; assistant professor, 1885-91; professor of the Romance languages and literatures, Columbia University, 1891-; American correspondent of La République Française, 1876-84, and of Le Temps, 1884-95; honorary president of the New York Committee of L'Alliance Française; Chevalier de la Légion d'Honneur; Cavaliere della Corona d'Italia

editor of The Journal of Geography; associate editor of the Bulletin of the American Geographical Society; author of Reader in Physical Geography for Beginners, and Dodge's Geographies

instructor in philosophy, University of Minnesota, 1894-95; professor of philosophy and head of the department of philosophy and psychology, University of Minnesota, 1895-1902; professor of philosophy, Columbia University, 1902-04; Johnsonian professor of philosophy, 1904-; fellow of the American Association for the Advancement of Science and of the New York Academy of Sciences; member of the American Philosophical Association, the American Psychological Association and president (1902) of the Western Philosophical Association; editor of The Journal of Philosophy, Psychology and Scientific Methods and of The Archives of Philosophy; author of The Philosophy of Hobbes

FREDERICK HENRY SYKES.

A.B., Toronto, 1885; A.M., 1886; student, scholar, and fellow, Johns Hopkins, 1891-95; Ph.D., 1894; member of Exeter College, Oxford, 1899-; teacher in secondary schools of Ontario, 1885-1891; sometime examiner in English for the Education Department of Ontario and for the University of Toronto; professor of English and history in Western University of Ontario, 1895-97; staff lecturer in English literature of the American Society for the Extension of University Teaching, 1897-1903; lecturer in the Johns Hopkins University, 1900-02; professor, Teachers College, and director, Extension Teaching, Columbia University, 1903-, and professor of English in Extension Teaching, 1906-; member of the Modern Language Association of America; president of the Modern Language Association of Ontario, 1897-98; author of French Elements in Middle English, Elementary English Composition for High Schools, English Composition for Grammar Schools, A Syllabus of Lectures on Shakspere, A Syllabus of Lectures on the History of English Literature in the Nineteenth Century; editor of various English texts; general editor of Scribner's "English Classics" series

fellow, 1898-99; student at Leipzig, 1899-1900; tutor in German, Columbia University, 1900-02; instructor and registrar of the University, 1902-04; adjunct professor and registrar, 1904-; secretary, Columbia University Quarterly, 1900-05, managing editor, 1905-; editor, English-American bibliography, Goethe Iahrbuch; member of Goethe Gesellschaft and Modern Language Association; co-editor of Deutsche Reden; author of Ossian in Germany; translator of Ruemelin's Politics and the Moral Law; contributor of statistical articles to Science; corresponding secretary Germanistic Society of America

1899-1900; assistant in history, 1900-01; lecturer in history, 1901-03; instructor, 1903-05; general editor on the eleventh edition. Encyclopedia Britannica and manager of reference department of the London Times, 1904-05; student in Paris, Rome and Heidelberg, 1905; adjunct professor, 1905-08; professor, 1908-

history and economics for Educational Committees of Co-operative Societies of England and Wales, 1900-02; Curtis Fellow in Columbia University, 1902-03; lecturer in history, 1904-07; adjunct professor of politics, 1907-; author of The Office of Justice of the Peace in England, An Introduction to the English Historians, and (with Professor J. H. Robinson) The Development of Modern Europe

Diploma, State Normal School, San José, California, 1895; A.B., Leland Stanford, 1899; A.M., Columbia, 1902; Ph.D., 1905; fellow in education, Teachers College, 1903-04; principal, elementary Schools, California, 1896-97, 1899-1901; instructor and principal of primary practice schools, State Normal School, San Francisco, 1902-03; lecturer, State Normal School, San José, Cal., 1905-07; Deputy Supt. of Schools, San Francisco, 1903, 1904, 1907; assistant in education, Leland Stanford, 1902-03; instructor, 1903-05; assistant professor, 1905-07; assistant professor of education, Summer Sessions, Yale University, 1906, University of California, 1907; lecturer in elementary education, Teachers College, 1904-05; adjunct professor, 1907-

#### Instructors

the Advancement of Science

John Driscoll Fitz-Gerald.......Romance Languages and Literatures

A.B., Columbia, 1895; Ph.D., 1906; University scholar in Romance languages and literatures, Columbia, 1895-96; student of Romance philology, Paris, 1896-97; Elève Titulaire de l'Ecole Pratique des Hautes Etudes (Section des Sciences Historiques et Philologiques), Paris, 1897; University fellow in Romance languages and literatures, Columbia, 1897-98; student of Romance philology at Berlin, Madrid, Paris, 1900-02; Elève Diplômé de l'Ecole Pratique des Hautes Etudes (Section des Sciences Historiques et Philologiques), Paris, 1902; assistant in the Romance languages and literatures, Columbia University, 1898-1902; tutor, 1902-07; instructor, 1907-; member of the Hispanic Society of America; corresponding member of the Real Academia Española de la Lengua

instructor, Michigan State Normal College, 1901; teacher of mathematics, Horace Mann School, 1902-; assistant, Teachers College, 1904-07; lecturer, Extension Teaching, Columbia University, 1906-; instructor in Teachers College, 1907-; member, American Mathematical Society

### TUTORS

and literatures, Columbia University, 1905-; member of Goethe Gesellschaft and Modern Language Association; joint editor of Grillparzer, Die Ahnfrau

- ALLAN F. WESTCOTT. English
  Ph.B., Brown, 1903; A.M., 1904; lecturer in English, Columbia
  University, 1906; tutor, 1908-
- M.E., Stevens, 1884; assistant superintendent, Dixon Pencil Works, 1884-87; erecting engineer, Hyatt Filter Co., 1887-91; consulting mechanical engineer, 1891-94; instructor, mechanical drawing and descriptive geometry, Newark Evening Technical school, 1892-95; instructor, descriptive geometry and drawing, College of the City of New York, 1894-1901; designing and building special machinery, 1902-04; professor in charge of the mechanical department, North Carolina College of Agriculture and Mechanic Arts, 1905-08; tutor, mechanical engineering, Columbia University, 1908-

### ASSISTANTS

### LECTURERS

Organist, First Parish, Concord, Mass., 1882-92; pupil of Professor Paine, Harvard, class of 1891; pupil of Arthur Foote; music master, Hill School, 1892-94; organist, Christ Church, Baltimore, 1894-96; staff lecturer in music for the American Society for the Extension of University Teaching, 1894- and the Delegacy for the Extension of University Teaching, University of Oxford, 1907-08; lecturer for the Brooklyn Institute, 1899-; lecturer in music, Extension Teaching, Columbia University, 1903-; composer of Priscilla, opera; Cascabel, opera; The Eve of St. Agnes, dramatic ballad for soli, chorus, and orchestra; Portraits, five pieces for the piano; Symphonic Ode for orchestra, anthems, etc.

Librarian of the Bryson Library, Teachers College, Columbia Universary; lecturer in library economy, Extension Teaching, Columbia University, 1907-

CALVIN BRAINARD CADY.....

Graduate, Oberlin Conservatory, 1872; student at Leipzig Conservatory, and private student of E. F. Richter, Professor Dr. Oscar Paul (University of Leipzig), Dr. Robert Papperitz, Leipzig, 1872-74: organist, teacher of harmony and pianoforte, Oberlin, 1875-79; professor of music, University of Michigan, 1880-88; Chicago Conservatory, 1888-94; editor of Music Review, 1892-94; private teacher, writer, lecturer, normal work, Chicago, 1894-1901; Boston, 1901; lecturer, New England Educational League, 1905; lecturer in music, Extension Teaching, Columbia University, 1906-; lecturer in music, Teachers College, Columbia University, 1907-; author of Music-Education. An Outline

MICHAEL MARKS DAVIS, JR..... .....Political Science A.B., Columbia, 1900; Ph.D., 1906; diploma in secondary school teaching in physical science, Teachers College, 1900; Columbia University scholar in economics, 1901-02; fellow in sociology, 1902-03; secretary of the People's Institute, New York, 1904-; lecturer in political science, Extension Teaching, Columbia University, 1907-; contributor of reviews and articles to Charities and the Commons, Political Science Quarterly, etc., author of Gabriel Tarde, A Study in Sociological Theory

A.B., Amherst, 1904; master in English and public speaking, the Haverford School, 1905-07; graduate student, Columbia, 1908; lecturer in English, Extension Teaching, Columbia University, 1907-

STEPHEN PIERCE DUGGAN..... B.S., College of the City of New York, 1890; M.S., 1896; A.M., Columbia, 1898; Ph.D., 1901; tutor at College of the City of New York, 1896-97; instructor, 1897-1906; associate professor, 1906-; lecturer in political science, Extension Teaching, Columbia University, 1907-08; lecturer in politics, Extension Teaching, Columbia University, 1908-; author of *The Eastern Question*, A Study in Diplomacy, and of numerous articles on Colonial Government; member of the American Political Science Association, and of the National Educa-

CHARLES GALWEY.....

tional Association

A.B., New York University, 1901; fellow and assistant in English, New York University, 1901-02; student in Harvard, 1903-04; scholar in English, New York University, 1904-1905; tutor in English, College of the City of New York, 1904-; assistant in English, Columbia University, 1906-07; lecturer, Extension Teaching, 1907-

CARLTON HUNTLEY HAYES.....

A.B., Columbia, 1904; A.M., 1905; president's scholar, 1904-05; fellow, 1905-06; lecturer in history, Columbia University, 1907-; member of the American Historical Association

Student, Art Schools of the Metropolitan Museum of Art, New York, 1889-92, Ecole Nationale des Beaux Arts, Paris, 1901; patron of the Jallade Prevot atelier of the Society of Beaux Arts Architects, 1904-08; principal of the building and engineering schools of the New York City Y. M. C. A., 1904-08; lecturer in architecture, Extension Teaching, Columbia University, 1907-; secretary of the Society of Beaux Arts Architects, 1904-07; practising architect

B.S., Boston and Massachusetts Agricultural College, 1894; graduate student and scholar, Yale, 1894-97; Ph.D., Yale, 1897; assistant in chemistry, 1897-98; teacher of physical science, State Normal School, Moorhead, Minn., 1898-99; teacher of science, Calumet High School, Mich., New Britain High School, Conn., Montclair High School, N. J., 1899-1904; assistant teacher of chemistry in high schools, New York City, 1904-07; assistant supervisor of lectures, New York City, 1907; author with F. A. Gooch of Outlines of Inorganic Chemistry, and Laboratory Experiments in Inorganic Chemistry, and Laboratory Experiments in Inorganic Teesacrch papers in volumetric analysis, published in the American Journal of Science, the Chemical News, and the Zeitschrift für Anorganische Chemie; lecturer in chemistry, Extension Teaching. Columbia University, 1908-

# **EXTENSION TEACHING**

### 1-GENERAL STATEMENT

Extension Teaching is defined by the Statutes of the University as instruction given by University officers and under the administrative supervision and control of the University, either away from the University buildings or at the University, for the benefit of students not able to attend the regular courses of instruction.

Extension Teaching is under the immediate supervision of an Administrative Board and the Director of Extension Teaching. The relation of Extension Teaching to the other work of the University is subject to the jurisdiction of the University Council.

Extension Teaching facilitates and directs instruction for students not in academic residence, by means of various courses of instruction given at special times and places, both at the University and elsewhere. The University thus offers to men and women, especially to those engaged in teaching, who can give only a portion of their time to study, an opportunity to pursue some subjects included in a liberal education, and to make progress, if they so desire, toward a diploma in teaching or an academic degree. In the Evening Technical Courses opportunity is given to members of certain trades and professions to avail themselves of technical courses of the University modified to meet the needs of the students con-

#### 2—RELATION OF EXTENSION TEACHING TO OTHER UNIVERSITY WORK

I. Subject to the general authority of the University Council to regulate the relation of Extension Teaching to the other work of the University, the weight to be attached to attendance upon an Extension course on the part of a student who subsequently makes application to be admitted to candidacy for a degree or diploma in teaching is fixed by the Faculties of Columbia College and of Barnard College in the case of candidates for the Bachelor's degree; by the Faculty of Teachers College in the case of candidates for diplomas in teaching or for the professional degree of Bachelor of Science in the course of Education; and by the University Council, acting through its Commttee on Higher Degrees, in the case of candidates for higher university degrees.

2. Students taking Extension courses who desire to become candidates for a diploma in teaching or for the professional degree of Bachelor of Science in Education will make application to be received as such to the

Secretary of Teachers College.

Students taking Extension courses who desire to become candidates for the degree of Bachelor of Arts will make application to be received as such to the Dean of Columbia College, if men, or to the Dean of Barnard

College, if women.

Students taking Extension courses who desire to become candidates for higher university degrees will make application to be received as such to the Secretary of the University, who will refer each application to the Dean of the appropriate Faculty.

## **2—COURSES OF INSTRUCTION**

The courses offered by Extension Teaching are as follows:

I-Collegiate Courses. These are courses that repeat at special hours or places the courses in liberal studies offered in the colleges of the University—particularly Columbia College and Barnard College. These are given, one or more hours weekly, during the college year, for thirty weeks of actual instruction. They are given in the same manner, and often by the same instructors, as the corresponding courses in the Colleges. University credit, when granted, attaches to those courses as to courses of instruction in the Colleges.

In college courses thirty hours' instruction normally counts two points towards a degree or diploma. Sixty hours' work in college laboratory,

studio, or shop counts, also, two points of credit.

II—Professional and Technical Courses for Teachers. These are courses offered at Teachers College or in local centres to teachers in active service, who can avail themselves of these courses to get instruction in the psychology, history, and principles of education, special methods of teaching, particularly in elementary work, and technical instruction in the fine and manual arts and domestic science.

In this group are included courses intended to prepare teachers for

their work in the field of foreign missions.

Teachers College, likewise, arranges its schedule of courses to make a large number of courses, both for graduates and undergraduates available for the teachers of New York City and the vicinity.

III—Evening Technical Courses. These are courses given with the coöperation of the School of Applied Science and the School of Architecture of the University, and certain technical departments of Teachers College. They are intended to meet the ends of technical and professional workers who desire to get instruction at night from University instructors in technical courses modified to their particular needs.

These courses are given for the most part two evenings a week, in two hour sessions, beginning in the last week of October, and continuing for twenty to twenty-five weeks of actual class instruction. As a rule no

credit towards degree or diploma is attached to these courses.

IV-Lecture Courses. These are short courses of lectures which are not accepted towards the fulfillment of requirements for degrees or

diplomas. They are given only in local centres.

A lecture course treats the same field of study as a collegiate or professional course; but, as a rule, it consists of six lectures, one lecture weekly or fortnightly, for six successive weeks or fortnights. Each lecture is followed by a brief conference, where the lecturer and the serious students may meet for discussion and criticism. The lectures are outlined by syllabus and are intended to be supplemented by private reading, local study classes, and written work.

Lecture courses are intended to have both academic and popular qualities, and to be suitable to the larger and more general audiences in communities that may establish for themselves local centres of Extension

Teaching.

# 4-PLACES AND HOURS FOR EXTENSION COURSES

Collegiate, Professional, and Evening Technical Courses are for the most part given at Columbia University and Teachers College, Morningside Heights. The most convenient means of access are the Subway (Broadway Branch, 116th Street, Columbia University Station; or the Sixth or Ninth Avenue Elevated, 116th Street Station or 125th Street Station; and Broadway or Amsterdam Avenue surface lines

Columbia University resumes work on September 23rd, and resident courses begin from that date. Extension Teaching opens its courses with the week beginning Monday. September 28th, which continue, as a rule, for thirty weeks of actual class-work. Extension courses at the University are given usually on the afternoons of school days at 3, 4, and 5, at

night on Mondays, Tuesdays, Wednesdays and Thursdays, 7.45-9.45, and

on Saturdays from 9 A. M. to I P. M.

Certain of these credit courses are usually given annually in local centres—by the Board of Education of New York City, in the Brooklyn Institute, the Brooklyn Teachers' Association, and in Newark, Paterson, and elsewhere. Particulars concerning these can be learned from the local secretaries or from the Director of Extension Teaching.

and elsewhere. Particulars concerning these can be learned from the local secretaries or from the Director of Extension Teaching.

Lecture Courses are given only in local centres, at times and periods to be arranged. A large number of these courses are offered to the public of New York City through the Board of Education, Department of Lectures, bulletins of which are issued from time to time by the Supervisor

of Public Lectures, Board of Education, New York City.

### 5—ADMISSION TO EXTENSION COURSES

No test or examination is required for admission to courses offered by Extension Teaching; but it is expected that the prospective students shall have had a secondary school education. The courses are open, unless it is otherwise stated, both to men and women; but students to be admitted must satisfy the instructors that they can pursue the courses with advantage.

### 6—STUDENTS—NON-MATRICULATED AND MATRICU-LATED

Students who are duly admitted to Extension courses are termed non-matriculated students. Students who have completed the requirements of admission and been formally admitted by or in behalf of the faculty concerned, as candidates for the diploma or degree, are termed matriculated students.

# 7-REGISTRATION OF NON-MATRICULATED STUDENTS

Non-matriculated students desiring to enter any Extension course (or any resident course open to duly qualified non-matriculants) given at Columbia University (including Barnard College and Teachers College) are required to make application by means of an application for registration (blank furnished by the Director of Extension Teaching on request).

Students who have registered for a course are liable for the fee. Should they desire to change their course they must file notice (a blank is provided for the purpose) and receive the approval of the Director of Extension Teaching. Should they desire to withdraw from the course, they are liable for the fee up to the end of the half-year in which their notice of withdrawal is received.

Non-matriculated students desiring to enter courses offered in local centres register only in the local centre. Should such students desire to become candidates for degrees or diplomas they must proceed as indicated

below (§9).

# 8—REGISTRATION OF MATRICULATED STUDENTS IN EXTENSION COURSES

Matriculated students are admitted to courses offered in Extension Teaching with the consent of the dean of the faculty in which they are registered. Matriculated students of Teachers College, admitted by permission of the Dean of Teachers College, may take all but twenty-four points of the requirements in Extension and Summer Session courses. Matriculated students of Columbia College and Barnard College may not credit any Extension courses towards their degrees, but advanced standing is granted non-matriculated students who may subsequently be admitted to these colleges and make application for credit for work done.

Students desiring to register as matriculated students in Teachers College must do so during the week of September 16-23, otherwise they

are subject to a "late registration fee" of \$5.

Matriculated students of Teachers College applying for admission to Extension courses must enter their application on the regular blank of Teachers College and at the regular time of registration; on receipt of the application, it is acted on by the Dean of Teachers College and the Director of Extension Teaching.

#### 9-ADMISSION AS MATRICULATED CANDIDATES FOR DEGREES AND DIPLOMAS

Non-matriculated students who intend to proceed to a degree or diploma should procure a copy of the Announcement of the College or Faculty they desire to enter—Columbia College (for men), Barnard College (for women), Teachers College (for men and women). These announcements are sent on application to the Secretary of the University.

The completion of the requirements for the degree of Master of Arts depends upon suitable preparation in major and minor subjects with specific point credits therefor. Students who wish to offer a subject either as a major or a minor should before registration consult the officers of instruction concerned with regard to their selection of courses.

The requirement for the degree of A.B., is one hundred and twentyfour points in undergraduate courses, and for the Bachelor's diploma of Teachers College and the degree of B.S. (prerequisite, sixty points in collegiate courses) sixty points. Ninety-six out of the total number of points (one hundred and twenty) required for a bachelor's degree in Teachers College or diploma in teaching may be gained in Extension courses (collegiate and professional) and in the courses of the Summer Session of the University.

All non-matriculated students who desire to proceed to a degree or diploma and to receive credit for the courses they enter, must do as

follows:

- 1. Admission as Matriculated Candidates.—They must be regularly admitted as candidates for the degree or diploma (see § 2. 2).
- (a) The requirement for admission as candidates for the A.M. degree is the diploma of A.B. or its equivalent from an approved college or scientific school.
- (b) The requirements for admission as a candidate for the degree of A.B. or B.S. are set forth in the Announcement of Entrance Examinations for 1909, which may be obtained on application to the Secretary of the University.
- (c) The entrance requirement for admission to Teachers College as candidates for the B.S. degree in Teachers College is substantially the same as for candidates for A.B. But two years of work in a college, scientific school, normal school, training-school or technical school are required in addition as prerequisite to admission to its two years professional courses. (See Teachers College Announcement, 1908-09. pp. 35, 36.)

All candidates for entrance to the professional courses leading to the Bachelor's diploma of Teachers College, or to advanced standing, should apply to the Secretary of Teachers College for a blank form of application to be filled out and returned for the consideration of the Committee on Admission. Each application is considered on its own merits. No formal entrance examinations are held, but in case of apparent deficiency such tests are imposed as will demonstrate the applicant's qualifications for undertaking the work proposed.

- 2. Credit.—Students must be regularly admitted to candidacy for a degree or diploma in order to have the work undertaken by them credited. The records of students who have taken Extension courses or courses in the Summer Session of the University, are preserved in the Director's office or in the Registrar's office, and should be referred to by those making application for admission to Columbia College or Barnard College, or Teachers College, as candidates for diplomas or degrees.
- 3. Advanced Standing.—Non-matriculated students who subsequently make application for admission as candidates may receive advanced standing for approved courses taken in Extension Teaching up to and not exceeding twenty-four points in Columbia College and Barnard College and up to and not exceeding ninety-six points in Teachers College.
- 4. Matriculation Fee.—The non-matriculated student who has satisfied the requirements for admission must fulfill the requirements of registration as set forth in the appropriate announcement of the school or college he purposes to enter, and pay the matriculation fee of \$5. If he has already paid a registration fee of \$5, no additional matriculation fee is required.

On matriculation the student becomes subject to the authority of the

faculty in which he is registered.

### 10-STUDENTS' FEES FOR EXTENSION COURSES

r. Courses given at the University.—All students, matriculated or non-matriculated, admitted to Extension courses offered at the University must pay the fees determined by the Administrative Board and stated with the announcement of each course offered. As a rule, the fee for an Extension course (marked E.) is determined at the rate of \$5 for each fifteen hours of class-work (one point), or its equivalent of thirty hours of laboratory, studio, or shop work. On payment of the gross fee of \$150 for the year students may take Extension courses amounting to eighteen points. All students taking partial work who may be admitted to courses offered by Columbia College, Barnard College, or Teachers College must pay for such courses at the rates established by the particular college. All fees must be paid to the Cashier of Teachers College immediately after registration.. No name is entered on the instructor's roll until the fee is paid.

2. Courses in Local Centres.—Students in Extension courses in local centres pay the fee determined by the local centre. Payment must be made to the treasurer of the local centre. No fee is charged for credit beyond the fee paid to the local centre.

Extension students who are following courses in local centres and who desire to proceed to a diploma or a degree and to receive credit for their work, must fulfill all the requirements of registration and matricula-

tion (see §9).

### 11—ATTENDANCE

Non-matriculated students are held to the regulations as respects attendance that prevail with the corresponding resident courses. As a rule students to satisfy the requirements of attendance must be present at least nine-tenths of the sessions.

### 12-EXAMINATIONS

For each collegiate or professonal course two examinations are held, one at the close of the first half-year, and the other on the termination of the course. The examination is optional with all students except candidates for degrees, diplomas, and certificates. There is no fee charged for these regular examinations.

For examinations at special times the fee is \$5.

To obtain credit for a course the student must apply for credit as stated above (\$9), and he must satisfy the instructor of his attendance and proficiency and receive his written recommendation.

### 13—CERTIFICATES

Students not proceeding to a diploma or a degree are entitled, provided that they have fulfilled the conditions of registration, attendance, reading, and written work prescribed, to present themselves at the regular examinations, and, if approved, they are entitled to a certificate or statement for each completed course.

### 14-LIBRARY PRIVILEGES

The Library of Columbia University (450,000 volumes) and the Bryson Library of Teachers College (35,000) are open for reference to all students registered in Extension Teaching. All teachers and all non-matriculated students taking courses amounting to at least six points have the privilege of withdrawing books.

### 15—RESIDENCE

Whittier Hall, the dormitory of Teachers College, will admit for residence students registered in Extension Teaching. For information apply to the Secretary, Whittier Hall, 1230 Amsterdam Avenue. The Directress of Teachers College will be glad to give students information regarding reliable rooms and boarding-houses.

### 16-VISITORS

Visitors are admitted to a session of an Extension course only on presentation to the instructor of a visitor's card, procurable at the office of the Director of Extension Teaching.

# 17—LOCAL CENTRES

To facilitate the work of instruction away from the University, the Administrative Board may institute local centres. Local centres may be established wherever a local community or a local organization undertakes to offer, year by year, one or more of the Extension courses of the University. Local boards of education, teachers' associations, schools, societies, and clubs, desirous of offering Extension courses, may be constituted local centres. In general, however, a special Local Committee (president, secretary, treasurer, and five members) representing the particular community is the usual organization of the local centre.

Local centres are responsible, through the Local Committee, for the effective arrangement of Extension courses they offer. They determine, in cooperation with the Director, the courses they offer; they enlist local interest; they provide, by fees or the sale of tickets or otherwise, for all the expenses of their work—the course fee, the cost of syllabi, the traveling expenses of the lecturer, lecture-hall, janitor, printing and advertising, and when lectures are to be illustrated they must provide the lantern

and operator.

Address all communications: The Director of Extension Teaching, Columbia University, Teachers College, New York City.

### COURSES OF INSTRUCTION

I and II—Collegiate Courses for Men and Women and Professional and Technical Courses for Teachers offered at Columbia University and in Local Centres, 1907-08.

Courses marked E. (e. g., E. English Aa) are courses offered by Extension Teaching. Courses marked T. C., (e. g., T. C. Education A) are courses of Teachers College to which non-matriculated students may be admitted provided they possess the qualifications of Special students—that is, if they are teachers or intending teachers of proper qualifications who wish, without reference to any degree or diploma, to make a serious study of any special subject or related group of subjects.

For the general regulations governing the granting of credit for these courses, see General Statement § 9, of this Announcement. Application for credit or advanced standing under the Faculty of Teachers College

should be addressed to the Secretary of Teachers College.

Courses that have no College credit are numbered with Roman numer-

als (e. g., T. C. Domestic Science I).

Application blanks for registration in Extension courses at Columbia University may be procured by addressing the DIRECTOR OF EXTENSION TEACHING. Students who have not entered, or who have withdrawn from, a course for which they have registered, must send written notice of withdrawal to the Director of Extension Teaching.

# ANTHROPOLOGY

E. Anthropology I—History of Early Civilization with Special Reference to the History of Civilization of Europe. Professor Boas

The course will deal with the following subjects in the history of civilization: The European races and their relations to the races of mankind; the types of mind of primitive man and of civilized man; conservatism and progress in primitive society and in higher forms of civilization; the psychological sources of cultural elements; parallelism of development in distinct cultural centres; geographical and historical transmission of cultural elements; sources of European inventions; introduction of metals, domesticated animals, cultivated plants, later inventions (writing, paper, gunpowder, etc.); sources of European customs, religion, literature.

Columbia University, Schermerhorn, 505. Thirty sessions. Wednesdays and Fridays 4 P. M. First session September 30th. Fee \$10. Re-

quires thirty students. (Two points.)

# ARCHITECTURE

E. Architecture 3b—History of Ancient, Mediaeval and Oriental Architecture.

Professor Hamlin

This course will cover in general the ground of the lectures given to the professional students in the school of architecture, but with less detail, and will be as free as possible from technicalities. It is intended to meet the special needs of non-professional students of either sex; of men and women interested in the general history of art and of civilization, but without special training in architecture; of students in schools of painting, sculpture, and decorative art, who desire a more thorough acquaintance with the styles of the Middle Ages, both in architecture and decoration; and of draftsmen in architects' offices, who seek to supplement their technical training by study of the history of their art.

Columbia University, Havemeyer, 311. Thirty sessions. days 4.30 P. M. First session October 15th. Fee \$10. (Two points.) Requires fifteen students.

This course will be followed in 1909-10 by a course on Renais-

sance and Modern Architecture.

See also Evening Technical Courses.

### BIBLICAL LITERATURE

E. Biblical Literature 1-2—The Literature of the Old Testament.

This course embraces a survey of the history of the Hebrew nation and the rise of their sacred literature; and an examination of the Old Testament as a library, both as a source of the historical opinions and religious ideals of the Hebrew people, and as a national literature. The different books are studied as developments of the several kinds of Hebrew literature. The respective standpoints and the original ideas and special messages of the different writings are noted, along with the spiritual, intellectual, and literary qualities which account for them as religious masterpieces. Selections are read from the historical writings, the Proverbs, Job, and the Psalms, and several of the prophetical books are read entire.

Teachers College, 222. Thirty sessions. Wednesdays 4 P. M. Fee

\$10. Requires twenty students.

E. Biblical Literature 3-4—Old Testament History. This is a course in the political and religious history of the ancient Hebrews. It will be studied as part of ancient history and with reference to its effect upon the history of mankind. The Old Testament writings will be used as sources of the times of which they treat and of the periods of the different writers whose ideas they reflect. Other sources of the history of Israel and her neighbors will be freely drawn upon. A syllabus, special maps, and a text-book will be used. The student will be directed in the compilation of a note-book, which will serve as the test of the course.

Columbia University, Library, 410. Thirty sessions. Saturdays 10

A. M. First session October 3rd. Fee \$10. Requires twenty students.

Also given at the Brooklyn Institute. For information address the

Director of the Institute.

E. Biblical Literature 5-6-New Testament History and Literature.

This is a course in the life of Jesus and of the apostle Paul, and of the New Testament books as sources of history. It involves a study of the social, political, and religious conditions of the first century, and the extent and character of New Testament literature, including the special purpose, standpoint and method of each author. Events will be traced, crises marked and results noted, with a view to becoming as thoroughly acquainted as possible with the purpose, spirit, strength, charm, ideas and methods of work of the leading personalities. The student will be directed in the compilation of a note-book, which will serve as the test of the course.

Teachers College, 222. Thirty sessions. Saturdays 12 M. First ses-

sion October 3rd. Fee \$10. Requires twenty students.

Education 51-52—Sunday-School Instruction. Dr. HODGE This is a course in the principles of education applied to the Sundayschool institution. The discussions will deal with the religious and intellectual capacity and moral life and worship of children of different ages, the selection of biblical and other literature necessary, and its distribution in a curriculum, graded methods of teaching, and Sunday-school architecture, equipment, organizaton and management. Practical methods of reorganizing Sunday-schools according to modern educational ideas will be considered and illustrated from examples of successful attempts. Students will be directed in preparing specimen pages of note-books, such as may be expected of Sunday-school pupils. A syllabus will be used for the course, and maps specially designed for development by Sunday-school pupils.

Teachers College, 114. Thirty sessions. Saturday II A. M. First session October 3rd. Fee \$10. Requires twenty students.

Also given at the Brooklyn Institute. For information address the Director of the Institute.

### BIOLOGY

T. C. Biology 53-54-Applied Biology. Laboratory work, lectures, and recitations.

Professor Bigelow, Miss Broadhurst, and Miss Stackpole

Students who have previously completed a satisfactory course in

elementary physiology may be excused from the recitation.

This course is primarily a study of certain facts and ideas of biology, particularly with application to the structure, functions, and general hygienic relations of the human body, as illustrated by selected animal and plant materials. The first half-year includes a general survey of the elements of human physiology. The second half-year gives particular attention to foods and nutrition, muscular and nervous activity,

and the essentials of bacteriology.

Teachers College, Room 300; Fridays 4 P. M. (Lecture.) Mondays
4-6 P. M. (Laboratory.) First session September 25th. Fee \$30; lab-

oratory fee \$1. (Four points.)

T. C. Education 153-154—Theory and Practice of Teaching Biological Sciences in Secondary Schools. Lectures, readings, and Professor Bigelow and Miss Broadhurst practical work.

Prerequisite: Education A or 19-20, and at least 24 points in

college biology, including botany, zoölogy, and human physiology.

Teachers College, Room 300. Wednesdays 3 P. M. (Class work—two points.) Mondays 3-5 P. M. (Laboratory—two points.) Practical work—two points. Hours to be arranged with instructors before registration. First session September 23rd. Fee \$45. (Six points.)

T. C. Biology 55-Outlines of Biology. Lectures, reading and lab-Professor Bigelow and Miss Stackpole oratory demonstrations.

This course will present the outlines of the facts and generalizations of biology which are most important and interesting for students of edu-

cation, and will discuss the bearing of biology upon educational problems.

Teachers College, Room 300. The course may be given during the second half-year, Mondays, Wednesdays and Fridays at 5 P. M., if more than twenty students apply. First session February 1st. Fee \$22.50. (Three points.)

### BOTANY

E. Botany 12-22—General Botany. Professor Curtis

Designed especially to meet the needs of the teachers in the second-ary schools of New York and vicinity. This course comprises a study of the plant body from the structural and physiological view-point, and considers also the morphological character and the relation of the plant to its environment. The evolutionary development of the great groups of plants will be considered, and practical work will be given in the identification and classification of plants by means of keys and manuals. The work is supplemented by a number of field trips to interesting botanical localities in the vicinity of New York. Especial attention is given to laboratory manipulation, aiming to make the student proficient in setting up of experiments and the making of preparations suitable

for elementary work. Columbia University, Schermerhorn, 502. Thirty sessions, Saturdays 1-4 P. M. First session October 3rd. Fee \$15. Requires ten

students. (Three points.)

E. Botany 3a-4a—Plant Morphology—The Natural History of Plants. Professor Curtis

Especial attention will be given to the adaptive features in plants. Material for the laboratory exercises will be procured as far as possible by the class in the field. The work will also be directed with a view to familiarizing the student with the more important plants in the local flora. No prerequisite, but an elementary course in botany would be found helpful. The text-book of the course is Curtis, The Nature and

Development of Plants.

Columbia University, Schermerhorn, 502. Thirty sessions, Saturdays

9 A. M.-12. First session October 3rd. Fee \$15. (Three points.) Re-

quires ten students.

### CHEMISTRY

See also under Physical Science.

E. Chemistry 109-110-The Principles of Chemistry.

This course prerequires a knowledge of elementary chemistry and is especially recommended for those who teach chemistry in secondary schools. It will consist of lectures and conferences on the atomic theory, Dalton's Laws, chemical equivalents, atomic weights, laws of Dulong and Petit, Avagadro, Boyle, etc., molecular weights, osmotic pressure, dissociation, ionization, mass action, reactions of oxidation and reduction, structural formulæ, isomerism, polymerism, periodic law, thermo-chemistry and electro-chemistry.

Some time will be devoted to a discussion of questions of method that confront and interest every teacher of elementary chemistry. The laboratory work will include experiments that may be used by the teacher

or his class to illustrate the above principles.

Columbia University, Havemeyer, 413. Thirty sessions, lectures and laboratory work—lectures 1-2 P. M.; laboratory work, from two to four hours, Saturday morning or afternoon, at the convenience of the student. First session October 3rd. Fee \$20 or \$30, according to laboratory work taken; laboratory fee \$5. Deposit for apparatus, subject to refund, \$10. (Credit four or six points in accordance with work done.)

E. Chemistry III—The Chemistry of Dyeing. Laboratory exer-Professor Pellew

The course will begin with the physical and chemical properties of the chief textile fibres, cotton, wool, and silk, their identification under the microscope and by the use of chemicals, and their separation from each other.

This will be followed by a systematic course in the dyeing of cotton, wool, and silk, in colors and black, in the latest and best methods known, due attention being paid to the durability, and fastness to light and to

washing, as well as to the beauty of the shades produced.

The student will be taught the principles of weighing natural silk, and of dyeing and identification of the various kinds of artificial silk. Also instruction will be given in the artistic dyeing of leather, feathers and straw.

Columbia University, Havemeyer, 416. Fifteen sessions. Tuesdays

and Thursdays 2 P. M. First session November 3rd. Requires a registration of fifteen students. Class limited to twenty-five. Fee \$7.50.

See also Evening Technical Courses-Elementary Chemistry.

### COMPARATIVE LITERATURE

E. Comparative Literature 1-2—Introduction to the Literature Professor Spingarn of Europe.

The purpose of this course is to indicate, so far as possible within the limits of a year's study, the power and charm, as well as the historical significance, of representative writers of Europe from the Renaissance to the present day. It is intended, not only for those who wish to acquire an introductory survey of European letters, but more especially for students of English literature who desire some information in regard to the chief continental authors from whom English poets have at various times derived their spiritual nourishment. The interest of the course will largely centre on the great types of forms of literature, and on the literary monuments in which national genius in each of these types culminated.

Assigned readings either in the originals or translations.

Columbia University, Havemeyer, 311. Thirty sessions. Wednesdays
4 P. M. First session October 3rd. Fee \$10. Requires thirty-five

students. (Two points.)

### DOMESTIC ART

T. C. Domestic Art 1a-2a-Hand Sewing. Demonstrations, discussions and manual work. Mrs. Hyde

This course is introductory to garment making and is adapted to public school work and industrial education. Woolman's Sewing Course is used as a text-book, but definite problems in the application of the principles and stitches will be presented.

Teachers College, 201, 335. Section I, thirty sessions. Wednesdays 10 A. M.-12. First session October 7th. Section II, thirty sessions. Tuesdays 7.30-9.30 P. M. First session October 6th. Fee for either section \$25; laboratory fee \$1. Requires ten students. (Two points.)

T. C. Domestic Art I-Hand Sewing. Mrs. Hype This course is an abridgement of T. C. Domestic Art 1a-2a de-

scribed above. Teachers College, 201. Fifteen sessions. Mondays 10 A. M.-12. First session November 2nd. Fee \$12.50; laboratory fee \$1. Requires ten stu-

dents. (Not credited towards degree or diploma.) T. C. Domestic Art 1c-2c-Drafting and Making of Garments. Elementary Course. Miss Schenck and Miss Baldt

This course includes underclothing, shirt waists, cotton and wool dress skirts. A knowledge of plain sewing is a prerequisite for admission to the class.

Teachers College, 330. Section I, thirty sessions. Saturdays 10 A. M.-First session October 3rd. Section II, thirty sessions. Thursdays

7.30-9.30 P. M. First session October 8th.

Prerequisite, T. C. Domestic Art 12-22 or its equivalent. Fee for either section \$25; laboratory fee \$1. Students provide their own materials. Requires ten students. (Two points.)

T. C. Domestic Art II-Drafting and Making of Garments. Elementary Course. Miss Baldt

This course is an abridgement of T. C. Domestic Art 1c-2c described above.

Teachers College, 330. Section I, twenty-four sessions. Mondays 10 A. M.-12. First session October 19th. Section II, twenty-four sessions. Tuesdays 10 A. M.-12. First session November 3rd. Fee for either section \$20; laboratory fee \$1. Students provide their own materials. Requires ten students. (Not credited towards degree or diploma.)

T. C. Domestic Art III-Making of Shirt Waists. Miss BALDT

Teachers College, 330. Six sessions. Section I. Wednesdays 10 A. M.-12. First session November 4th. Section II. Wednesdays 10 A. M.-12. First session February 3rd. Section III. Tuesdays 7.30-9.30 P. M. First session November 10th. Section IV. Tuesdays 7.30-9.30 P. M. First session January 12th.

Fee for each section \$5. Students provide their own materials. Requires ten students and is limited to twelve. (Not credited towards

degree or diploma.)

T. C. Domestic Art IV-Millinery.

Miss SMITH

This course is an abridgement of T. C. Domestic Art 19-20 described

Teachers College, 335. Twenty sessions. Fridays 10 A. M.-12. First session October 9th. Fee \$15; laboratory fee \$1.50. Students provide their own materials. Requires ten students. (Not credited towards degree or diploma.)

T. C. Domestic Art V-Hand Weaving. Practical work.

Miss BUTVEIT

This course includes practical spooling, warping, threading and weaving on the colonial type of loom, also simple weaving on the tapestry

and Barbour looms.

Teachers College, 332. Section I, ten sessions. Tuesdays and Thursdays 10 A. M.-12. First session October 6th. Section II, ten sessions. Mondays and Wednesdays 10 A. M.-12. First session November 9th. Fee for either section \$10. Students provide materials for weaving. Registration limited. (Not credited towards degree or diploma.)

T. C. Domestic Art VI-Clothing Economy. Lectures, discus-

sions, and demonstrations.

The selection and care of the personal wardrobe. Textiles, their market grades and adulterations. Shopping. Expenditure for personal wear, its amount and division. Care of the wardrobe.

Teachers College, 235. Ten sessions. Fridays 2 P. M. Section I, first session November 13th. Section II, first session February 5th. Requires ten students. (Not credited towards degree or diploma.)

T. C. Domestic Art 13-14-Embroidery. Miss SAGE

This course aims to give the necessary stitches used in decorative art, and also the application of these principles in the completed article. It considers the question of art in applied design, and connects its work directly with T. C. Domestic Art 5-6 and 11-12. The decoration of undergarments and fancy dress waists, of curtains and household articles, of collars, and parts of dress, and the like, receive attention.

Teachers College, 335. Thirty sessions. Thursdays 10 A. M.-12. First session October 24th. Prerequisite T. C. Domestic Art 1-2 or its equivalent. Fee \$15; laboratory fee \$1. Students provide their own materials.

(Two points.)

T. C. Domestic Art 17—Household Art. Lectures, demonstra-s, and excursions. Professor WOOLMAN and Mr. WARNER tions, and excursions.

Art in everyday life; color, and its use in the home; the effect of different textiles; healthful and beautiful clothing and furniture; historic styles in their relation to modern dress, furniture, and architecture.

Teachers College, 327. Fifteen sessions. Fridays 9-11 A. M. First half-year. First session September 25th. Fee \$15. (Two points.)

T. C. Domestic Art 18-Household Art. Lectures and excursions. Mr. WARNER

The appreciation of art in the home and in costume; historic furniture and decoration, with modern applications; new movements to establish style in England, Germany, France, and America; the history

Teachers College, 327. Fifteen sessions. Fridays 9-11 A. M.

half-year. First session February 7th. Fee \$15. (Two points.)

T. C. Domestic Art 19-20-Millinery.

This course includes the practical construction and artistic trimming

of various kinds of hats, according to the seasons.

Teachers College, 335. Section III, thirty sessions. Saturdays 10 A. M.-12. First session October 3rd. Section IV, thirty sessions. Thursdays 7.30-9.30 P. M. First session October 8th. Fee for either section \$25; laboratory fee \$1.50. Students provide their own materials. (Two points.)

E. Chemistry III—Dyeing. A course in dyeing designed for those interested in Domestic Art and in handicrafts is offered as E. Chemistry III-Chemistry of Dyeing. See under Chemistry.

#### DOMESTIC SCIENCE

T. C. Domestic Science I-Foods and Cookery.

Miss Barrows, Miss Skinner, Miss Vanderbilt

This course is arranged for those desiring practical knowledge of food, its purchase, composition, nutritive value, and preparation. Each lesson includes a brief lecture, and references for parallel reading are suggested. The practice work covers the cooking of cereals, fruits, vegetables, eggs, fish, meats, poultry; the making of beverages, soups, breads, cakes and desserts.

Teachers College. Twenty sessions.

Section I, Miss Barrows, Tuesdays 2-5 P. M. Room 423. First session October 13th.

Section II, Miss Willett, Fridays 9 A. M.-12. Room 423. First

session October 15th.
Session III, Miss Skinner, Fridays 9 A. M.-12. Room 421. First ses-

sion October 15th.
Section IV, Miss VANDERBILT, Saturdays 9 A. M.-12. Room 421. First session October 23rd.

Section V, Miss Wilson. Thirty sessions (fifteen weeks). Tuesdays

and Thursdays 7.30-9.30 P. M. Room 423. First session October 27th. Fee \$36 (including laboratory fee of \$6 for materials and service). Each section requires ten students. Not credited toward degree or diploma; but additional work can be arranged with Sections IV and V, the successful performance of which gives two points' credit as Domestic Science 1a-2a (see Teachers College Announcement).

T. C. Domestic Science II-Cooking and Serving-Advanced Course. Miss WILLETT

This course is designed for those who have taken Domestic Science I or those who have a practical knowledge of fundamental principles and desire further instruction and practice. The study of foods will be continued in a broader way than in Domestic Science I and with different illustrations of similar food materials. Such topics as these will also be included: the use of different fuels and appliances for cooking; the preserving of fruit; the planning, cooking and serving of meals.

Teachers College, 423. Twenty sessions. Saturdays 9 A. M.-12. First session October 23rd.

Fee \$36 (including laboratory fee of \$6 for materials and service). Requires ten students. (Not credited towards degree or diploma.)

T. C. Domestic Science III-Food Management-The Family Miss Barrows Dietary.

This course is intended for those who have completed Domestic Science I and II, or those concerned with the practical management of foods in a household. It includes the following topics: practical marketing and selection of foods; storage and care of foods uncooked and cooked; economical planning of the family dietary over periods of time. Part of the course will permit, within limits, the consideration of actual problems brought in by members of the class.

Teachers College, 418. Ten sessions.

Section I, Thursdays 3 P. M. First session October 22nd.
Section II, Thursdays 3 P. M. First session February 11th.
Fee \$10. Requires ten students. (Not credited towards degree or

diploma.)

### T. C. Domestic Science IV—Household Management.

Miss Skinner

This course is intended for young women who have just finished courses in high schools and other schools and who desire instruction in the art of household management. It includes the following topics, with class instruction and some practical work and excursions. The organization of the home; the family, past and present; for comparison, institutional households. The work of the household—the house, its health, care and order; food, its selection, purchase, storage and planning of meals; utensils and household equipment; clothing, care of the personal wardrobe; plans and schedules of work; domestic service. The family income, division of expenditures, and methods of control, as personal and household accounts.

Teachers College, 235. Fifteen sessions. Mondays 2 P. M. First session October 19th. Fee \$10. Requires ten students. (Not credited

towards degree or diploma.)

#### T. C. Domestic Science V-Dietetics.

Miss Jewell

A specialized course for nurses-in-training, open only to students in recognized Nurses Training Schools, who meet the standards set by Regents of the University of the State of New York. Instruction and practical work is given and the following topics are included: the food elements; their digestion; the food requirements of the body, for the normal person at various age periods; special diets in the treatment of diseases, the family and institutional dietary; parallel laboratory exercises illustrating principles and practice in food preparation.

Teachers College. Twenty sessions.

Section I, Fridays. Room 423. First session October 16th.
Section II, Thursdays 7.30-9.30 P. M. Room 423. First session November 6th.

Fee \$20; laboratory fee \$5. Requires eight students. (Not credited towards degree or diploma.)

T. C. Domestic Science 1a-2a-Household Technique. Laboratory and assigned work. Miss Barrows

For details see T. C. Domestic Science I. Sections IV and V.

#### T. C. Domestic Science 1b-Housework. Miss Barrows

This course gives the principles and practice of cleansing processes, cleaning and care of rooms, table-setting, use of labor-saving apparatus.

Teachers College, 421. Fifteen sessions. Mondays 9-11 A. M. First session September 28th.

Fee \$7.50; laboratory fee \$2.50. Open to special students if regis-

tration permits.

T. C. Domestic Science 2b-Laundering.

This course gives the principles and processes in laundry work, home laundering, the use of washers, mangles and other apparatus.

Teachers College, 421. Fifteen sessions. Mondays 9-11 A. M. First session February 1st. Fee \$7.50; laboratory fee \$2.50. Open to special

students if registration permits.

Students completing T. C. Domestic Science 1b-2b receive two

points' credit.

T. C. Education 157-158-Supervision and Critic Teaching in Domestic Science. Conferences and practical work. Professor KINNE

Prerequisite: Education 57-58; prerequisite or parallel, Education

B or 105-106.

Teachers College, Room 222. Sixty sessions. Class work Mondays and Wednesdays 3 P. M. First session September 23rd. Fee \$30. (Four points.)

### ECONOMICS AND SOCIAL SCIENCE

E. Economics A-Principles of Economics. Lectures, themes, conferences.

This course is designed not only for teachers, but for men and women engaged in business or other vocations who will be assisted by an understanding of the economic principles underlying our present system of production and distribution. The course is planned to give a thorough understanding of these fundamental principles of economics, with special attention to their applications to a number of general practical problems; e. g., money and banking, protection, trusts and trust regulation, labor unions, and the ideals and agents of economic change. On a number of the practical questions discussed experts engaged in dealing with the matters at issue will be called in for addresses to the class.

The systematic work of the course will be based upon Seager's Introduction to Economics. References for required and for optional readings,

from other works, will be given.

Columbia University, Library, 406. Thirty sessions. Thursdays 4-5.30 P. M. First session October 1st. Fee \$15. (Three points.) Requires the registration of twenty students.

# EDUCATION—HISTORY AND PHILOSOPHY

T. C. Education B-History and Principles of Education. Lectures, required reading, reports, and discussions.

Professor Monroe, Dr. Cole, and Miss Goodsell

Lecture, Thursdays 4 P. M. Teachers College, 411. Conferences in sections. Section IV. Mondays 3 P. M. and Saturdays II A. M. for candidates for a Bachelor's diploma with a major subject in fine arts, or in manual training in elementary schools, in secondary schools,

or in supervision of manual training.

This course involves the study of the educational ideas and practices of those historic periods during which conceptions of education based on fundamental principles have been formulated. The principles thus arrived at through the study of the religious, psychological, and sociological aspects of education are considered in their application to the subjectmatter, method, and institutional organization of education as accepted in the prevailing eclectic conception. The aim of the course is to present

the essential features of the educational thought of the past as a basis for the more detailed historic, philosophic, and methodic study of the principles of education as formulated in the present.

A syllabus of the course,—A, No. 17, is issued, price 20 cents.

Prerequisite: Education A or 19-20.

Teachers College, Mondays. Room 325; Saturdays, Room 221. First session September 26th. Fee \$45. (Six points.)

T. C. Education Bb—History of Education During Modern Times. Dr. Cole

Second third of Education B. This portion of the course deals with the development of the various aspects of modern educational practices as they grow out of the particular theories of education formulated during the Renaissance and the following periods. Thus the humanistic, the realistic, the disciplinarian, the naturalistic, the psychological, and the sociological conceptions of education are studied in detail.

Monroe's Text-Book in the History of Education will be used as the

basis for the work. The syllabus is published—A, No. 17, price 20 cents. Brooklyn Institute. Thirty sessions. Tuesdays 4.15 P. M. For in-

formation address the Director of the Institute.

T. C. Education Bc-History and Principles of Education. Last third of Education B described above. Dr. Cole

This third portion of Education B aims to formulate the various principles of education, developed through the history of education into a component whole. It seeks to lay the basis for a scientific study of education considered as a human institution. The process of education is explained from the standpoint of the doctrine of evolution and the fundamental principles thus arrived at are applied from the three-fold standpoint of the history of civilization, the developing powers of the child and the cultivation of individual and social efficiency. The principles arrived at through a study of the religious, psychological, and sociological aspects of education are in turn considered in their application to the subject-matter, the method, and institutional organization of education as accepted in the prevailing conception.
Butler, Horne, and O'Shea, The Principles of Education, will be used

as the basis of the work.

The earlier portions of this course will be offered either at the same hour during successive years, or during the Summer Session.

Prerequisite: Education A or 19-20.

Teachers College, Room 116. Thirty sessions. Saturdays 9 A. M. First session September 26th. Fee \$15. (Two points.)

Education 201-202—History and Principles of Education. Special graduate section of Education B described above. Lectures and conferences. Professor Monroe

Teachers College, Room 211. Sixty sessions. Wednesdays and Fridays 4 P. M. First session September 23rd. Fee \$30. (Four points.)

T. C. Education 2-Logic as Applied to Problems of Teaching. Two lectures weekly during the second half-year. Professor Dewey

The course will discuss the method of logical thinking as the basis for the method of the recitation; and from this standpoint will consider the nature and function of observation, induction, reasoning, deduction,

and experiment in teaching.

Prerequisite: T. C. Education A or 19-20.

Teachers College, Thompson, 164. Thirty sessions. Second halfyear. Tuesdays and Thursdays 5 P. M. First session February 2nd. Fee \$15. (Two points.)

T. C. Education 103-104—The Educational Theories of Herbart and Froebel. Lectures, discussions, and an extended thesis on some This course, designed to meet the needs of advanced students of educational theory, consists primarily of the critical discussion of selected topics from the writings of Froebel and Herbart which are fundamental both in philosophy and in the theory of education. It (a) traces the evolution of ethical and educational theory from Rousseau to Froebel as an outcome of the movement in social theory; (b) relates the educational theories of Herbart and Froebel to the wider intellectual movements of Romanticism, Realism, and Idealism; and (c) interprets the significance for the present of the educational systems of these two leaders in educational thought.

Prerequisite or parallel: Philosophy 161-162, and Education B or

105-106.

Teachers College, Room 221. Sixty sessions. Mondays and Wednesdays 3 P. M. First session September 23rd. Fee \$30. (Four points.)

T. C. Education 109-110—Social and Philosophical Foundations of Greek and Roman Education. Socrates, Plato, Aristotle, the Stoics.

Dr. Cole

The social and educational philosophy of Plato and Aristotle is the centre of the course; but something of Cicero, Seneca, and Marcus Aurelius will be read as a sequel to the Greek philosophy. The course will have two aspects: it will involve a study of source material, with reports and discussions on matters of classical education and culture, as well as lectures in the philosophy of the history of education.

Teachers College, Room 230. Thirty sessions. Saturdays 10 A. M.-12.

First session September 26th. Fee \$30. (Four points.)

T. C. Education 203-204—Practicum. History of education in the United States.

The purpose of this course is twofold: (1) to present in detail the evolution of educational practices and institutions of the American people, and (2) to indicate the method of investigating the historical material relating to American education. The elementary school, the secondary school, and the institutions of higher education will be traced through (a) the period of transplanting of European institutions,—the town and dame school, the Latin grammar school, and the politico-ecclesiastical college; (b) the period of modification of institutions to suit new conditions,—the district school, the academies, and the denominational or independent college; and (c) the period of development of an educational system of free common schools, high schools, State universities, and technical schools, in harmony with American political and social ideals and institutions.

Teachers College, Room 222. Sixty sessions. Wednesdays and Fridays 5 P. M. First session September 23rd. Fee \$30. (Four points.)

# EDUCATION—ADMINISTRATION

T. C. Education 111-112—School Administration. Lectures, essays, and discussions. Professor Dutton

Prerequisite: Education A or 19-20: prerequisite or parallel, B or 105-106.

Teachers College, Room 221. Sixty sessions. Tuesdays and Thursdays 4 P. M. First session September 24th. Fee \$30. (Four points.)

T. C. Education 113-114—Administration of Social Education.

Lectures and discussions. Professor SNEDDEN

This course deals with the social significance and administrative possibilities of such special educational means as ungraded classes, truant schools, reform schools, and other institutions for defectives; the juvenile court and probation system; compulsory and child labor laws; vacation

schools and playgrounds; vocational education of children; co-operation of home and school; and voluntary educational agencies.

Prerequisite: Education A or 19-20: prerequisite or parallel, B or

105-10б.

Teachers College, Room 211. Sixty sessions. Mondays and Wednesdays 5 P. M. First session September 23rd. Fee \$30. (Four points.)

Education 211-212-Practicum. Administration of public education in the United States. Professors SNEDDEN and DUTTON

This course treats of the problems subject to investigation in the organization and administration of the public-school systems in the United States, with special reference to city-school systems.

Teachers College, Room 215 A. Thirty sessions. Saturdays 9 A. M.-11.

(For partial students.) First session September 26th. Fee \$30. (Four

points.)

### EDUCATION—EDUCATIONAL PSYCHOLOGY

T. C. Education A-General and Educational Psychology. Lectures, practical exercises, recitations, and required readings. Professors Thorndike and Suzzallo, Dr. Norsworthy, and Miss Whitley

Education Ac. Mondays 4 P. M. throughout the year.

Education Aa, first half-year, and Education Ab, second halfvear.

Education Aa is a general course in psychology with special reference to dynamic psychology and the mental processes important to intellect and character.

Students who have had a satisfactory course in general psychology

may be excused from Education Aa.

Education Ab is a systematic course in educational psychology, which in connection with Education Ac prepares students for the advanced study of the theory of education and for courses in the theory and practice of teaching special subjects.

Education Ac consists of lectures on the psychological basis of

educational theory and practice.

Teachers College, 221; 230. Students may register, if they desire, for each part separately—T. C. Education Aa—General Psychology; or T. C. Education Ab—Educational Psychology; or for T. C. Education Ac—Lectures on the Psychological Basis of Education. Each fee \$15. (Two points.) whole course fee is \$45. (Six points.) Sections VIII and IX, Wednesdays and Fridays 4 P. M. First sessions September 23rd and 25th.

E. Education Ab. Educational Psychology. Lectures, discussions, required reading.

This course will duplicate Education Ab as given to regular students in Teachers College.

Teachers College, Room 222. Thirty sessions. Saturdays II A. M. First session October 3rd. Fee \$10. (Two points.)

This course will also be given at the Brooklyn Institute, Thursdays 4 P. M. For information address the Director of the Institute.

T. C. Education 222-Practicum. The application of psychological and statistical methods to education. Professor THORNDIKE

Teachers College, Room 325. Thirty sessions. Wednesdays 4 P. M. First session September 23rd. Fee \$15 or \$30. (Two or four points.)

# EDUCATION—KINDERGARTEN

T. C. Kindergarten 1-2-Gifts and Occupations. Lectures, essays, discussions, and practical work.

Miss Sutherland, Miss McMahon, and Miss Abbott

Teachers College, Rooms 110, 114. Mondays, Wednesdays, Fridays I P. M. First session September 23rd. Fee \$30; laboratory fee \$5. (Four points.)

T. C. Kindergarten 3-4—Songs and Games. Lectures, practical playing of games, and the study of kindergarten songs.

Miss McMahon, Miss Sutherland, and Miss Abbott

Teachers College, Rooms 110, 116. Tuesdays and Thursdays 3 P. M. Fridays I P. M. First session September 24th. Fee \$30. (Four points.)

Kindergarten 5-6-Stories. Lectures, discussions, storytelling under criticism, and observation in the kindergarten and the first Miss Fulmer two elementary grades.

This course gives a general survey of appropriate literature for children, including folk- and fairy-tales, history stories, nature stories, fables, and poems, and works out a classification of this literature for purposes of reference. It also aims, by discussion and demonstration of the principles underlying the selection and presentation of stories to children, to equip the student for this part of her work.

Teachers College, 114. Sixty sessions. Mondays and Wednesdays 11 A. M. First session September 23rd. Fee \$30. (Four points.)

E. Kindergarten 5a-6a-Stories and Story-Telling. Lectures, discussions, writing and telling of stories. Mrs. Locke

This course will consist of a study of the varied forms of literature through which the life of humanity has expressed itself in the different stages of its development: the fable, the folk story, the fairy tale, the legend and the myth.

These first imaginative expressions of the childhood of nations contain the germs of thought that appeal to all childhood, and from a study of them deductions can be drawn that will lead to a discriminating choice of stories for the child of the present day.

The principles underlying the selection and presentation of these will be discussed and suggestive lists of stories for use in the kindergarten and primary grades will be developed.

Teachers College, Room 116. Thirty sessions. Wednesdays 4 P. M.

First session September 30th. Fee \$10. (Two points.)

T. C. Education 7-8—Kindergarten and Primary Work. Lectures, observations, and discussions, constructive and practical work.

Miss Fulmer in co-operation with Professor Strayer

This course will endeavor to make clear to kindergarten and primary teachers the unity of purpose and problem in their work. In considering the work of the kindergarten and the first two grades of the primary school, the continuity of both subject-matter and methods of instruction will be emphasized. About one-half of the course will be devoted to the problem of constructive work. The possible differentiation of the occupations of the kindergarten into the simpler forms of typical activities of industrial life, through raffia work, weaving, basketry, sewing, clay modelling, color work, construction in paper and cardboard, will be considered. Skill in use of materials will be developed through laboratory work in the processes mentioned above.

Practice work in this course may be divided between the kindergarten

and first two primary grades.

Prerequisite: Education A or 19-20.

Teachers College, Room 114. Sixty sessions. Mondays and Wednesdays 4 P. M. First session September 23rd. Fee \$30. (Four points.)

Education 7a-8a. Miss Fulmer

This course will endeavor to make clear to kindergarten and primary teachers the unity of purpose and problem in their work. In consider-

ing the work of the kindergarten and the first two grades of the primary school, the continuity of both subject-matter and methods of instruction will be emphasized. About one-half of the course will be devoted to the problem of constructive work. The possible differentiation of the occupations of the kindergarten into the simpler forms of typical activities of industrial life, through raffia work, weaving, basketry, sewing, clay modelling, color work, construction in paper and cardboard, will be considered. Skill in use of materials will be developed through laboratory work in the processes mentioned above.

Practice work in this course may be divided between the kindergar-

ten and first two primary grades.

Prerequisite: Education A or 19-20.

Teachers College, 114. Thirty sessions. Saturdays 10 A. M. session September 26th. Fee \$15. (Two points.) First

E. Education 7a-8a-Kindergarten and Primary Work. This course will also be offered at Brooklyn Institute. For information address the Director of the Institute.

E. Kindergarten 9-10—Education in the Home. Mrs. Langzettel

A two years' course of lectures consisting of: (i) A study of instincts, impulses and general activities of children during the first few years of infancy when the child is in the home and under the direct guidance of the mother.

(ii) A search to ascertain which of these activities are valuable and

may be utilized as starting points for later education.

(iii) A consideration of Froebel's interpretation of typical instincts and experiences as treated in his "Mother Play" book, with suggestions

Teachers College, Room 116. Twenty sessions. Tuesdays 10.30

A. M.-12. First session October 5th. Fee \$10. (Two points.)

The course is also given at the Froebel League Rooms, 61 E. 60th

Street. Twenty sessions. Two sections: 1st section, for those entering on the course (first year), Mondays 11 A. M., beginning November 16th; 2nd se \$\int\_{0.00}\$ for second year of the course, Wednesdays 3 P. M., beginning November 18th. Fee \$20. Students register with the Secretary of the Froebel League.

It is also given in Montclair, N. J. Fridays 10.30 A. M. First session November 6th. Fee \$20. Address Mrs. Percy Kennaday, 45 Harrison Avenue, Montclair, N. J.

It is also given in New Rochelle, N. Y. Wednesdays 3 P. M., beginning

November 11th. Address Miss Emily Thorntorn, 247 Main Street, New Rochelle, N. Y.

# E. Kindergarten 11-12-Froebel's Principles of Education.

Mrs. LANGZETTEL

A study of Froebel's principles of education for mothers, teachers and those interested in the general care and training of children and to find collateral statements of these principles in literature, science and philosophy. The aim of this course is to give an intelligent idea of the Kindergarten to those not desiring a technical training.

Page 61 F 60th Street. Twenty sessions. Thurs-

day II A. M. First session November 12th. Fee \$20 (fee for teachers \$10.)

This course will also be given, subject to registration, in Montclair, Fridays 2.30 P. M. First session November 6th. For information address

Mrs. Percy Kennaday, 45 Harrison Avenue, Montclair, N. J. It is also given in Englewood, N. J. Thursdays 3.30 P. M. First session November 12th. Fee \$20. Address Mrs. Robert Speer, Engle-

wood, N. J.

T. C. and E. Kindergarten 19-20-The Kindergarten and the Community. Lectures, observations and discussions. Mrs. Languettel

This course is intended to show the possibilities of the kindergarten in the community, the value of parents' associations, the proper conduct of parents' meetings, and to suggest means for the development of intelligent interest in the problems of education in the school.

Teachers College, Room 200. Twenty sessions. Tuesdays 4-5.30 P. M.

First session October 6th. Fee \$10. (Two points.)

T. C. Education 45-46—Theory and Practice of Kindergarten Teaching. Lectures, discussions, and practical work. Miss McMahon

This course aims to make application of the principles of kindergarten theory in practical work. The kindergarten materials are studied with a view to the formulation and arrangement of a kindergarten program. At least six weeks of teaching will be required; a longer period may be

Prerequisite: Education A or 19-20, and Kindergarten 1-2 and 3-4. Teachers College, 114. Mondays and Fridays 3 P. M. First session September 23rd. Fee \$60. (Eight points—class work two points; prac-

tical work and conferences six points.)

T. C. Education 145-146-The Theory and Practice of Kindergarten Education. Lectures, discussions, observation, and practical work. Professor MacVannel

The purpose of this course is the detailed examination of the fundamental principles,-historical, ethical, and psychological-which underlie the theory of kindergarten education in its organic unity and in its relation to education, considered as a human institution. Special study will be made, by means of analysis and demonstrations, of the educational values and methodology inherent in the various kindergarten materials with a view to their significance and organization in the kindergarten program.

Prerequisite: Education A or 19-20: prerequisite or parallel, B or

Teachers College, Room 116. Ninety sessions. Mondays, Wednesdays and Fridays 2 P. M. First session September 23rd. Fee \$45. (Six points.)

T. C. Kindergarten 103-104-The Kindergarten Program. Lectures, discussions, and written reports.

This course is designed for kindergarten teachers with a view to the determination of the kindergarten program, based upon a study of the child's normal interests, his constructive activities, and the educational uses of the gifts, occupations, games, songs, and stories. The significance of the forces which are at work in the present educational situation, and which demand a gradual reconstruction of educational theory, will be considered.

Teachers College, Room 418. Thirty sessions. Saturdays 10 A. M. First session September 26th. Fee \$15. (Two points.)

T. C. Kindergarten 106-Froebel and the Kindergarten. Lectures, essays, and discussions. Miss Blow

The work consists of an intensive study of Froebel's educational experience and the evolution of his educational ideal, studies in the Education of Man and possible reconstructions in the Froebelian occupations, concluding with a general exposition and estimate of Froebel's writings, as embodying a philosophy of education.

Teachers College, Room 418. Fifteen sessions. Saturdays II A. M.-I. Second half-year. First session February 6th. Fee \$15. (Two points.)

T. C. Kindergarten 119-120-Play and Games. Miss Crawford Teachers College, Room 164. Thompson. Sixty sessions. Mondays 2 P. M. Wednesdays 5 P. M. First session September 23rd. Fee \$30. (Four points.)

T. C. Education 142—Kindergarten Principles and Practice.
Lectures, investigation, written reports, and conferences. Miss Blow

This course aims to interpret the songs and stories, the plays and games, the gifts and occupations in their mutual relations and as concrete embodiments of Froebel's educational principles; and to estimate the degree to which Froebel's educational materials as a whole meet the needs of the child and aid him in gaining a method of control for subsequent growth and development.

Prerequisite: Education A or 19-20; prerequisite or parallel, B or

105-106.

Teachers College, Room 222. Thirty sessions. Tuesdays and Thursdays I P. M. Second half-year; first session February 2nd. Fee \$15. (Two points.)

T. C. Education 143-144—Kindergarten Conference. Lectures, Miss HILL discussions, and investigations.

This course, dealing with the practical problems of kindergarten education, is intended for kindergartners of experience who are preparing for training or critic work in normal schools or supervision of kindergartens.

Prerequisite: Education A or 19-20; prerequisite or parallel, B or

105-106.

Teachers College, Room 325. Fridays 3 P. M. Conferences by appointment. First session September 25th. Fee \$30. (Four points.)

#### EDUCATION—ELEMENTARY SCHOOL

Education 33a-34a-Theory and Practice of Teaching in Elementary Schools. Professor STRAYER

The special aim of this course is the formulation of principles of method, and their application to the subjects commonly taught in primary and grammar schools. A discussion of the place of each subject in the curriculum as an element in fulfilling the social aim of the school, the relation of the various subjects to one another, and the organization of subject-matter in each field, affords the preliminary basis for the study of methods. Special attention will be given to methods of teaching English, arithmetic, geography and history. Variation in method, not only from study to study, but also from grade to grade in the different subjects, will be indicated.

Teachers College, Room 222. Thirty sessions. Saturdays 9-11 A. M. First session September 26th. Fee \$30. (Four points.)

This course may be given, in briefer form, by Professor Strayer and Mr. Stockton, in Passaic. For information address Mr. James L. Stockton, 172 Sherman Street, Passaic, N. J.

It will likewise be offered by Dr. Earhart in the Brooklyn Institute. For information address the Director of the Institute.

T. C. Education 133ab-134ab-Criticism and Supervision of Instruction. Conferences, following observation of lessons in the school-Professor Suzzallo room.

This course deals with the problems of the supervision of teachers in service, from the standpoint of increasing the efficiency of school-room practice. It presupposes a good knowledge of psychology, methods of instruction and educational theory. It deals with the conditions, agencies and principles of supervision. The standards and types of educational criticism are presented, with opportunity to apply them in observation and discussion.

Practical work in the Speyer School may be arranged for in connection with this course when desired, special credit being given to the extent of two to four points.

Teachers College, Room 221.

Thirty sessions. Saturdays 9-11 A. M.

First session September 26th. Fee \$30. (Four points.)

# EDUCATION-SECONDARY SCHOOL

T. C. Education 127-128-Secondary Education. Advanced course. Lectures, discussions, readings and reports. Professor SACHS

In this course are discussed the problems of the secondary school, its equipment, its characteristic tendencies, the inter-relation of teacher and pupil, questions of class-organization, of presentation and disposition of subject-matter, of arrangement and adjustment of the secondary school curriculum.

Class teaching experience, Education A or 19-20; Prerequisite:

prerequisite or parallel, B or 105-106.

Teachers College, Room 130. Ninety sessions. Mondays, Wednesdays and Fridays 4 P. M. First session September 23rd. Fee \$45. (Six points.)

T. C. Education 225-226-Practicum. Professor Sachs

Students are expected to prepare during the course, in addition to assigned book-reviews, papers bearing on (1) general tendencies of American and foreign secondary school systems; (2) the relation between the secondary school and the elementary school, as well as the college; (3) specific problems in secondary education, with special reference to the public high school. During the first months of the course there will be offered a series of lectures on problems of the secondary school.

Teachers College, Room 116. Thirty sessions. Saturdays 11 A. M. First session September 26th. Fee \$30. (Four points.)

# **ENGLISH**

# Sub-collegiate Courses

(For students who have not had full preparation in English for college entrance.)

E. English X-College Entrance English-Books for Reading. Reading of texts, themes, conferences, tests, lectures and discussions.

Mr. MITCHILL

This course is designed to cover rapidly the work needed in preparation for English a of the requirements for admission to Columbia College, Barnard College, and the Schools of Applied Science. For each week certain texts will be read and themes will be prepared. The sessions will be devoted to brief lectures on the books read, to discussions of typical themes, to the writing of test paragraphs on selected topics, and to brief personal conferences. It will be the especial aim of the course to meet the particular needs of individual students; preparation for the work of this course will require about five hours a week. The successful completion of this course will count toward the removal of Columbia entrance conditions in English. The books prescribed should be read in advance of the opening of the course.

Columbia University, Fayerweather, 604. Twenty-six sessions. Wednesdays 4.20-5.50 P. M. First session October 21st. Fee \$15. Requires

ten students.

E. English Y-College Entrance English-Books for Study. Study of texts, themes, tests, lectures and discussions. Mr. MITCHILL

This course is designed to cover rapidly the work needed in preparation for English b of the College Entrance Examination Board, and of the requirements for admission to Columbia College, Barnard College, and the Schools of Applied Science. For each week the study of certain texts will be assigned and themes will be prepared. The sessions will be devoted to lectures, to discussions of the books read, and to brief tests. Preparation for the work of each session will require about five hours a week. The successful completion of this course will count toward the removal of Columbia entrance conditions in English. The books prescribed should be read in advance of the opening of the course.

Columbia University, Fayerweather, 604. Twenty-six sessions. days 4.20-5.50 P. M. First session October 23rd. Fee \$15. Requires ten

students.

## **English Composition**

E. English A—Composition and Literature—Elementary Course. Lectures, themes, and conferences. Mr. GALWEY

The course provides practice in elementary forms of composition and constitutes an introduction to the study of English prose. It aims to teach the writing of simple effective English and to suggest ways of entering into intelligent companionship with books. The work of the first term is as follows: (1) questions of usage; (2) the structure of a sentence; (3) the paragraph; (4) practice in certain useful forms of writing; letter writing, translation, and the examination paper; and (5) the short exposition and thesis. The following essays will be studied: Macaulay, Lord Clive; Carlyle Characteristics; Newman, selections from the Apologia, Idea of a University, and other works (see Gates's Selections from Newman); and Arnold, Literature and Science and Emerson from Discourses in Armold, Literature and Science and Emerson from Discourses in America. The second term deals with more imaginative writing, as follows: (1) Narration; the principle of selection; (2) short narratives emphasizing action, coherence, proportion and suspense; the introduction and the conclusion in story-telling; (3) description; a series of themes aiming at the ability to seize upon significant details and to put them into telling order; (4) the more obvious problems of characterization including a study of one literary type as portrayed by several writers; (5) recapitulation of the principles of narrative writing as applied to composition and to the criticism of fiction. The following novels will be discussed: Jane Austen, *Pride and Prejudice*; Scott, Old Mortality; Thackeray, Henry Esmond; Hawthorne, The Scarlet Letter; and Stevenson, Weir of Hermiston.

Columbia University, Section I, Fayerweather, 304. Section II, Teachers College, 322. Sixty sessions. Tuesdays and Thursdays. Section I meets at 4-5.30 P. M.; Section II, 7.30-9 P. M. First session October 6th. Fee

for either section \$30. (Six points.)

E. English Aa—Rhetoric and Composition. Lectures and themes. Mr. GALWEY

This course has in view teachers and students who wish to gain a knowledge of the principles of rhetoric and English composition as they are now generally taught in colleges. Students entering it should have had at least the ordinary secondary school training in English composition.

The lectures will treat of the following subjects: narration, description, exposition and argumentation, with incidental talks on diction and the writing of sentences. Students should have Carpenter and Brewster's Modern English Prose (The Macmillan Company).

Themes—two one-page or one three-page theme a week. These themes will supplement the lectures and class discussion in giving systematic drill in the forms of writing named above. During the first term they will be narrative and descriptive; during the second, expository and argumentative.

Teachers College, 211. Thirty sessions. Saturdays 11 A. M. Fee \$15.

First session October 3rd. (Three points.)
This course may be taken to complete English sA, and is (or its equivalent is) prerequisite to E. English 12-22.

E. English Aa—English Composition.

Mr. GALWEY

The purpose of this course is practical throughout. It is designed work is planned to develop the power of clear and orderly explanation of matters of fact and opinion; the second portion aims at the ability to produce short, coherent narratives and concise descriptions. The class will write a carefully graded series of weekly themes. The lectures furnish a compact statement of fundamental rhetorical principles and, incidentally, suggest methods of teaching English composition. By acquainting the student at first hand with some simple problems of literary art, the course also supplies a brief introduction to the study of imagina-

tive prose.
The Brooklyn Institute. Saturdays 9.30 A. M. (Three points.) For

information address the Director of the Institute.

E. English 1a-2a—English Composition—Advanced Course. Lectures, themes, and theme criticism. Mr. BOYESEN

Open to students who have passed E. English A or Aa with high

standing, and to special students of maturity.

This course presumes a knowledge of formal rhetoric and training in the essentials of composition, correctness, precision, and the like, and also in rhetorical form, narration, description, exposition, and argumentation. It aims to treat composition in a more practical and less analytic way, and it has in view the more general questions of style. From two to four pages of manuscript (250-500 words) are required each week. During the first half-year these will be in the form of short themes of one page each, designed to train the student in variety and range of expression; those of the second term will be longer and toward the end of the term should form separate chapters or sections of a larger piece of work. The work of this term has in view students who wish to write short stories and various kinds of exposition.

Teachers College, 230. Thirty sessions. Saturdays 9 A. M. First session October 3rd. Fee \$15. (Three points.)

# English Language

E. English 9-10—The English Language and Modern English

This course is intended primarily for teachers in the upper grades and in high schools. Special subjects in Modern English Grammar will first be taken up (the value and definition of the parts of speech, the sentence and its component parts, special questions in syntax, etc.), and several recent English grammars will be examined in detail. Attention will then be directed toward the historical study of the English language (the English vocabulary, etymology, and inflectional system); as a basis for such study, Emerson, History of the English Language, and Sweet, An Anglo-Saxon Primer (Clarendon Press, 93 Fifth Avenue), will be used. The course will be conducted by recitations and discussions, with occasional lectures.

A syllabus of this course is published—Series A, No. 5, price ten cents. Teachers College, 325. Thirty sessions. Saturdays 9 A. M. First session October 3rd. Fee \$10. (Two points.)

# Public Speaking and Reading

E. English 11a-12a—Public Speaking.

Mr. Dow

This course will deal in general with public address. It will, so far as is possible, be founded on actual practice, and will make theory incidental. It will aim at training students in the various forms of public

speech, and in the practice of public meetings and conferences. The work

will be divided approximately into four groups:

I-DECLAMATION. Oral interpretation of selected addresses; individual training before the class will be given in the use of voice, tone, enunciation, inflection, emphasis, gesture, and the general attitude of

speaker toward audience.

II—Discussion of the Various Forms of Public Address. Practice in the speech of introduction, of nomination, of welcome; the eulogy;

extemporaneous speeches.

Discussion of the general principles of argumentation III—DEBATE. and the use of evidence. Practice in the drawing of briefs. Debates on social, economic and political questions.

IV-ORATORY. Study of illustrative specimens of oratory. Delivery

of carefully written orations.

Teachers College, 221. Thirty sessions. Thursdays 7.45 P. M. First session October 1st. Fee \$10. (Two points.)

English 57-58-Oral Reading. T. C. Lectures. practice, and criticism. Miss LATHAM

A course intended to prepare teachers to correct and improve their

pupils in speech and in reading aloud.

First half-year: the nature and use of oral reading; practice in reading easy prose and narrative poetry, for the purpose of securing clearness, directness, naturalness, force, etc.

Second half-year: emphasis; time; pitch; rhythm; practice in reading

difficult prose and lyric and dramatic poetry.

Teachers College, 325. Sixty sessions. Tuesdays and Thursdays 5 P. M. First session September 24th. Fee \$30. (Four points.)

# English Literature

E. English 19a-20a-The History of American Prose.

Mr. CLYDE FURST

Introductory lectures on the different forms of prose writing, and on their connection with particular conditions in the United States; on pioneer and colonial description and narration, and on the early theologians and statesmen. Class discussion of the work of Franklin, Irving, Cooper, Poe, Hawthorne, Emerson, Holmes, Lowell, Howells and James. Concluding lectures on prose literature as affected by the Civil War and the periods of reconstruction and expansion; on the religious and the philosophical writers, the historians, the travelers, the humorists, the essayists, and the critics; and on the studies of regional and national traits in contemporary short stories and novels.

Those wishing to count the course (two points) for credit toward a diploma or a degree or for certificate, are required to read and present memoranda on selected works of the authors mentioned, to present notebook summaries of the class discussions, and to pass the usual mid-year and final examinations on the matter read and on that presented in the lectures. Two or three hours a week should suffice to cover the reading.

References for reading are given in Extension Syllabus, Series A, No. 3-American Literature, a General Survey; suggestions for study in Extension Syllabus, Series A, No. 7-Representative American Writerseach, ten cents.

The History of American Prose is treated in a complementary course, E. English 19b-20b.

Teachers College, 325. Thirty sessions, one hour weekly. Tuesdays 4 P. M. First session September 29th. Fee \$10. (Two points.)

E. English 19b-20b-The History of American Poetry. Mr. CLYDE FURST

Introductory lectures on the essential elements of poetry, and its particular sources and earliest manifestations in the United States. Class

discussion of the work of Bryant, Poe, Emerson, Whittier, Longfellow, Holmes, Lowell, and Whitman. Concluding lectures on the lesser poetry of New England, the Middle States, the West and the South; with a sur-

vey of contemporary productions and tendencies.

Those wishing to count the course (two points) for credit toward a diploma or a degree or for attendance, are required to read and present memoranda on selected poems of the authors mentioned, to present notebook summaries of the class discussions, and to pass the usual mid-year and final examinations on the matter presented in the lectures. Two or three hours a week should suffice to cover the reading.

References for reading are given in Extension Syllabus, Series A, No. 3—American Literature, a General Survey; suggestions for study in Extension Syllabus, Series A, No. 7—Representative American Writers—

ten cents each.

The History of American Prose is treated in a complementary course,

E. English 19a-20a.

Teachers College, 325. Thirty sessions. Thursdays 4 P. M. First session October 1st. Fee \$10. (Two points.)

E. English 23a-242-The History of English Literature-Nine-

teenth Century. Lectures, readings, discussions, themes.

Professor SYKES

This course will review the chief movements of social life and thought in the nineteenth century which influenced the literature of the century and of romanticism and realism in poetry and the novel. It will embrace a study of the representative poets, novelists, and essayists of the era, their characteristics as exemplified in selected works. The detailed statement of the course—authors, bibliographies, prescribed readings, etc.—is contained in the Extension Syllabus, Series A, No. 6, price 10 cents. The text-book of the course is Saintsbury's Nineteenth Century Literature (Macmillan).

Teachers College, 200. Thirty sessions. Mondays 4-5.30 P. M. First

session September 28th. Fee \$15. (Three points.)

E. English 23b-24b-English Poetry in the Nineteenth Century.

Professor Page

A general introduction to the poetry of England in the nineteenth century with detailed study of the chief authors from Wordsworth to Kipling and other contemporary poets.

Kipling and other contemporary poets.

The Brooklyn Teachers' Association, P. S. 15. Tuesdays 4.15 P. M. Address Dr. Lewis H. Tuthill, P. S. 16, Wilson Street, Brooklyn, N. Y.

E. English 272-282—History of English Literature—Eighteenth Century.

Mr. Westcott

The aim of this course will be to give a comprehensive survey of the chief literary movements of the eighteenth century, with attention also to the social life and the intellectual temper of the period. The course will be divided roughly into three parts: the first dealing with Pope, Swift, Addison, and the minor poets and essayists of the age of Queen Anne; the second with the development of the novel in the work of Defoe, Richardson, Fielding, Smollett and Sterne; and the third with Johnson, Goldsmith, and their contemporaries, and the beginnings of romanticism in the poetry of Young, Blair, Thomas, Collins, and Gray. The text-book of the course is Gosse's History of Eighteenth Century Literature.

Teachers College, 322. Thirty sessions. Fridays 4 P. M. First session

October 2nd. Fee \$10. Requires fifteen students. (Two points.)

E. English 35a-36a—Shakspere. An introduction to the study of Shakspere, the conditions and character of his life and work and the technique of his plays.

Professor Sykes

This course begins with a few lectures on the general conditions of Shakspere's life and work—Shakspere's England; Shakspere's life—gen-

eral outlines; Shakspere in relation to nature and the English Rennaissance; the Pre-Shaksperean drama; the early theatres; the typical characteristics of structure of the Shakspere play. Then particular plays are studied for the various periods of Shakspere's art:—the early comedies—Love's Labour's Lost, Comedy of Errors, Midsummer Night's Dream; histories—the Lancastrian sequence Richard II., Henry IV., Henry V.; the tragi-comedy—The Merchant of Venice; early tragedy—Romeo and Juliet; the comedies of the middle period-Much Ado about Nothing, As You Like It, Twelfth Night, Measure for Measure; the Sonnets; the great tragedies-Julius Caesar, Hamlet, Othello, King Lear, Macbeth; romance-The Tempest. The earlier lectures of this course will be illustrated with lantern slides.

The student should have a good one-volume edition—the Globe (The Macmillan Co.) or the Oxford edition (Clarendon Press) or the Cambridge edition (Houghton, Mifflin)—or the Temple edition (Dent) of the separate plays studied; also Dowden's Shakspere Primer (The Macmillan Co.), Brandes's William Shakespeare (The Macmillan Co., I vol. ed.); and either Freytag's Technique of the Drama, tr. MacEwan (Scott, Foresman) or Woodbridge's The Drama, its Law and its Technique (Allyn and Racon). The text-book of the course is Brandes's Shakespeare. A syllabus of this course is issued—Series A, No. 1, price 10 cents.

Teachers College, 130. Thirty sessions. Section I, Mondays 3 P. M. First session September 28th. Section II, Saturdays 10 A. M. First session October 3rd. Fee for either section \$10. (Two points.)

E. English 43a-44a-English Drama from 1660 to 1900.

The opening of the theatres with new stage equipment and new methods—the Restoration drama—the Heroic Play under Dryden, Otway. Lee and Rowe, and restoration comedy with the Molière influence as summed up in Congreve; the extension of the methods and materials of the Restoration under Farquhar and Cibber; Steele and Addison and French sentimental comedy; Lillo, the first voice of the middle-class on the stage; Goldsmith and Sheridan, a return to the Restoration tradition; the Germanization of the English stage under Kotzebue; the romantic revival in the poetic drama of Byron, Knowles, Browning, and Lytton; the influence of Scribe and the new scenic realism towards the gradual break-up of the rhetorical tradition, illustrated by Boucicault and Tom Taylor; Robertson and sentimental naturalism; Gilbert, Wilde, and Shaw, the later nineteenth century wits; the poetic tragedy of Tennyson and Phillips; the rise of the drama into a more definite art form and a serious criticism of life under Pinero and Jones; together with some account of the history of the English stage, its physical changes in lighting, relation to audience, etc., during this period; its actors, Betterton, Mrs. Barry, Garrick, Mrs. Siddons, the Kembles, Macready, and Irving; and its movement towards realism and naturalism.

Teachers College, 418. Thirty sessions. Wednesdays 4 P. M. First

session September 30th. Fee \$10. (Two points.)

E. English 59a-60a-Typical Forms of Literature. Lectures, dis-Professor Sykes cussions, assigned readings.

The object of this course will be to consider the chief forms in which literature is expressed; poetry, its metres and its forms, the ballad, the epic, the lyric, the drama, prose and its forms, the tale, the romance, the novel, the essay, the biography, the oration.

Each form will be considered briefly in its origin and development in English and foreign literatures; but the main purpose of the course will be to characterize the type and the forms included under the type.

Teachers College, 130. Thirty sessions. Saturdays 11 A. M.-12.30.

First session October 3rd. Fee \$15. (Three points.)

See also E. Philosophy 41a-42a-Æsthetics. Under Philosophy.

# Theory and Practice of Teaching English

T. C. Education 161-162—Theory and Practice of Teaching English in Secondary Schools. Lectures, reading, written work, observation and practice-teaching. Professor BAKER

This course, consists of (a) lectures and papers on the choice, interpretation, arrangement, and presentation of material; (b) study of methods of teaching English; and (c) practical work in the Horace Mann and Speyer Schools.

Prerequisite: Education A or 19-20, and at least 24 points in col-

lege English; prerequisite or parallel, Education B or 105-106.

Teachers College, 325. Saturdays 10 A. M.-12 (class-work only). First session September 26th. (Six points—class work four points; practical work two points.) Fee \$45; for class work only, \$30.

### FINE ARTS

T. C. Fine Arts 1-2-Object Drawing and Sketching.

Mr. MARPLE

Instruction in the principles of representation, light and shadow, appearance drawing, theory of perspective. Drawing from objects, still life, casts, animals, and figures; landscape sketching. The mediums are brush and ink, pencil, charcoal, and water-color.

Open, as a general elective, to all students.

Teachers College, 435. Section II, Fridays 3-5 P. M. First session September 5th. Fee \$15; studio fee \$1. (Two points.)

E. Fine Arts 1-2-Object Drawing and Sketching. Mr. HUMANN Instruction in the principles of representation, light and shadow, appearance drawing, theory of perspective. Drawing from objects, still life, casts, animals, figures, and the model; landscape sketching. The mediums are brush and ink, pencil, charcoal and water-color.

The course aims to give students facility in technique and to afford a foundation for those who intend to become designers and illustrators,

or to do art work of any kind.

Teachers College, 435. Fifty sessions. Tuesdays and Thursdays 7.45-9.45 P. M. First session October 27th. Fee \$20; studio fee for materials \$1. Requires twenty students. (Three points.)

T. C. Fine Arts 5a-6a-Principles of Design. Mrs. Briggs

Theory and principles of design in a course abridged from 5-6, and arranged to meet the needs of teachers and workers in arts and crafts. Drawing with brush and ink, charcoal and water color. No prerequisite. Open to students who obtain the consent of the head of the department.

Teachers College, 430. Saturdays 9 A. M.-12. First session September 26th. Fee \$22.50. (Three points.)

T. C. Fine Arts 7a-8a-Drawing and Painting. Mr. MARPLE

This is a course for art teachers, supervisors, and grade teachers. The hour is arranged for those who cannot get instruction during the school week. Drawing in charcoal and pencil; water color; blackboard work. Open to students who obtain the consent of the head of the department.

Teachers College, 435. Thirty sessions. Saturdays 9-11 A. M. session September 26th. Fee \$15; studio fee \$1. (Two points.)

T. C. Fine Arts 11-12—Clay Modelling. Miss HANCKEL

Instruction in the principles of design, with clay as the medium of expression. The study of form and construction is arranged in a series of progressive lessons, beginning with simple lines and masses in mouldings, repeating borders, and pottery, and proceeding to the more complex forms of sculpture. The course has direct relation to the manual arts,

to wood-carving, metal-work, and pottery, but is also designed to meet

the needs of teachers in elementary schools.

Teachers College, 15. Section I. Wednesdays and Fridays 3-5 P. M. First session September 23rd. Fee \$30; studio fee \$2. (Four points.)

E. Fine Arts 21a-22a-Art Photography. Lectures and laboratory work. Mr. WHITE

This course will deal with the following subjects:—the application of art to photography defined, and instruction in the use of the camera. Field and laboratory work, making negatives, and showing the manipulation of negatives and printing papers. Photography in the fields of landscape, architecture, illustration, and portraiture. Mounting, framing, and lantern-slide making.

Practice will be offered in the use of the camera in the field (Satur-

day afternoons) and in the studio.

Teachers College, Section I, 201, Section II, 200. Fifty sessions.

Tuesdays and Thursdays Section I, 4-6 P. M.; Section II, 7.45-9-45 P. M. First session October 27th. Fee \$20. Section I requires ten students; section II twenty students. (Three points.)

This course will also be offered at Brooklyn Institute. For informa-

tion address the Director of the Institute.

T. C. Fine Arts 53-54—Art Appreciation: History of Art. Lectures, required reading, and discussions. Professor Dow Professor Dow

The purpose in this course is an appreciative study of the spacearts,—painting, sculpture, architecture, and design; with discussion of analogies in the other fine arts; and of their historical development.

The first part of the course is devoted to lectures upon the nature of the space-arts, showing by illustration and comparison that certain principles of structure are common to them all. This affords opportunity for appreciation of harmony and composition, and is a preparation for the historical study to follow. The main topics of this part are: principles of structure in the space-arts, theory of design, composi-tion of line, composition of dark-and-light, theory of color, art criticism. In the historical study a general chronological order is followed

but the facts as to dates, authors, and periods are not discussed at length, such knowledge being derived from the reading. The lectures are devoted to critical study of the style and artistic importance of historic examples. The subjects are, in brief outline: Primitive art, Egyptian architecture and design, Japanese and Chinese art, the arts of India, Greek art—the Parthenon; Roman Art—Pompeii; Byzantine and Gothic architecture and design, early Italian painting and sculpture, Giotto and his school, the art of the Renaissance, Venetian painting, Spanish, Dutch, and English art, landscape painting, modern art.

The course is illustrated by photographs and lantern slides. Readings in text-books will be assigned and tested by frequent written and oral

exercises.

Teachers College, 411. Tuesdays 4-5.30 P. M. First session September 29th. Fee \$30. (Four points.)

See also E. Philosophy 41a-42a-Æsthetics. Under Philosophy.

#### FRENCH

See under Romance Languages and Literatures.

#### GEOGRAPHY

T. C. Geography 1a-2a-General Geography. Lectures, discussions and reference work. Miss Kirchwey

The aim of the course is to acquaint teachers with the modern point of view in geography and to give them an understanding of the essential

facts and principles necessary for good teaching in the various grades of

the elementary school.

The following subjects indicate the general scope of the course; the shape, size, and motions of the earth and their effects; the continents, with special reference to the study of the principal land forms and the work of rivers; the oceans, with emphasis on the tides and ocean currents; the atmosphere, with regard to the distribution of temperature, winds and rainfall over the world. Application will be made to North America and to Europe throughout the work in order to show the dependence of continent work upon these fundamental principles.

Dodge's Advanced Geography and Dryer's Lessons in Physical Geog-

raphy will be the leading texts.

Open to students who obtain the consent of the head of the de-

partment.

Teachers College, 200, 201. Thirty sessions. Saturdays II A. M. First session September 26th. Fee \$15. (Two points.)

T. C. Geography 53—Geography for Primary Grades. Lectures, laboratory demonstrations, and collateral reading. Miss Kirchwey

This course is designed for primary teachers and for special teachers of geography and of nature-study. It covers the field of geographical nature-study for primary grades and of primary geography, dealing with the physical and the living aspects of the environment and their relationships. The work will be based largely on observations.

Open to students who obtain the consent of the instructor. Nature-Study 6 is recommended as a complementary course.

Teachers College, 200, 201. Thirty sessions. Wednesdays and Fridays 4 P. M. First half-year. First session September 23rd. Fee \$15. (Two points.)

T. C. Geography 56—Man and his Environment. Lectures and collateral reading. Professor Dodge

This course presents a brief summary of the fundamental relations which exist between man and his environment. It is especially designed for those who wish an introduction to the more important and interesting principles of general geography and who do not expect to make a special study of the subject. Among the topics that will be considered are: the relation of mankind to his climatic environment; river valleys and life; mountains and people; plains and people; life in the temperate lands, in the deserts, in the tropics; man's relation to the ocean and shore; the geography of the great industries; the geography of boundaries and their determination. The latter part of the course will consist of a study of the relation of man to his geographic environment in certain selected regions, as the Holy Land, the Mediterranean, France, the United Kingdom, the Low Countries of Europe, New England, the Southern States and India. The aim throughout the course will be to show how far social and economic conditions, habits and customs are resultants from the geographic conditions of the environment.

Herbertson's Man and his Work, Brigham's Geographic Influences

in American History.

Open to students who obtain the consent of the instructor.

Teachers College, 200, 201. Thirty sessions. Wednesdays and Fridays 4 P. M. Second half-year. First session September 23rd. Fee \$15. (Two points.)

T. C. Education 67-68—The Teaching of Geography in Elementary Schools. Lectures and discussions.

Professor Dodge and Miss Kirchwey

This course includes a study of what elementary school geography
should be: the planning of a course of study; the special problems to be

met in class work in the different grades; the choice and use of collateral reading; excursions; reproductive work, etc. Special attention will be given to the content of home geography, the teaching of location, latitude and longitude, the elements of physical geography, and geography for the upper grades.

Dodge's Elementary and Advanced Geographies.

Prerequisite: Education A or 19-20, and Geography 1-2 or its equivalent. Not open to students who have taken or are taking Education 33-34. Open to all others who receive the consent of the instructors.

Teachers College, 200, 201. Thirty sessions. Saturdays 9 A. M. First

session September 26th. Fee \$15. (Two points.)

#### GERMAN

E. German A1-A2-Elementary Course.

Professor Bagster-Collins

The object of this course is to familiarize the student with the common vocabulary and the fundamental grammatical facts of the language, so as to enable him to read easy German at sight. The instruction is planned chiefly with this object in view, and reading forms part of the work from the beginning; grammar study, writing, and oral practice in German, though all are made use of, are regarded rather as means toward the attainment of reading ability than as ends in themselves.

Text-book: Thomas, Practical German Grammar, 4th edition (Holt). Teachers College, 230. Sixty sessions. Tuesdays and Thursdays 4-5.30 P. M. First session September 29th. Fee \$30. (Six points.)

E. German A1-Elementary Course-First Half. Mr. HEUSER

This course aims to give to beginners a minimum of German Grammar as presented in Part I of Thomas's Practical German Grammar, together with a considerable amount of colloquial practice in the phrases of everyday life. About seventy-five pages of reading matter will be covered. Specially proficient students, who read privately about one hundred additional pages of German prose, will be able to satisfy the elementary College Entrance requirement. The course may also be supplemented by German sA3 in the Columbia University Summer Session or by E. German A2, which will then be the equivalent of German A in Columbia or Barnard College.

Text-books: Thomas's Practical German Grammar, 4th edition (Holt); Hervey's Supplementary Exercises to Thomas's German Gram-

mar (Holt), and Guerber's, Märchen und Erzählungen (Heath).
Columbia University, University Hall, 327. Thirty sessions. Saturdays 9.30-11 A. M. First session October 3rd. Fee \$15. (Three points.)
Also offered by the Brooklyn Teachers' Association. Mr. PORTER-FIELD, P. S. No. 15, Brooklyn. Monday 4.15 P. M. Address Dr. Lewis H. Tuthill, P. S. No. 16, Wilson Street, Brooklyn.

E. German A2-Elementary Course-Second Half. Mr. HEUSER

This course is open to those who have taken E. German AI or German sAr and sA2 in the Columbia University Summer Session or an equivalent. The work will begin with a thorough review of elementary German Grammar in order to lead to greater facility in the use of grammatical inflections and of the elementary rules of syntax and word-order. About two hundred pages of easy stories and plays will be read (partly at sight), selected from such texts as Andersen's Bilderbuch ohne Bilder, Heyse's L'Arrabbiata, Seidel's Leberecht Hühnchen, Gerstäcker's Germelshausen, Storm's Immensee, Fulda's Unter vier Augen, Baumbach's Sommermärchen. Constant practice will be given in the oral reproduction in

German of the subject-matter read and in the memorizing of the common

idioms of the language.

E. German A2 completes the work required in German A or for the elementary College Entrance requirement. Students with a fair reading-knowledge of German, but lacking a thorough grounding in Grammar, may find it advantageous to supplement, during the same year, E. German B1a by E. German A2, or E. German A2 by E. Ger-

man AI, according to the degree of their proficiency.

Text-books: required at the beginning: Thomas's Practical German Grammar, 4th edition (Holt); Hervey's Supplementary Exercises to Thomas's German Grammar; Andersen's Bilderbuch ohne Bilder, edited

by Bernhardt (Heath).

Columbia University, University Hall, 327. Thirty sessions, Saturdays II A. M.-12.30. First session October 3rd. Fee \$15. (Three points.)

E. German Bra-B2a-Intermediate Course. Intended for students who have had German A or an equivalent of it. The work of this course comprises the reading (partly at sight) of about three hundred pages of moderately difficult prose and verse by standard modern authors, such as Heine, Freytag, Scheffel, Baumbach, Seidel, Fulda, and one of the less difficult classical dramas; of grammatical instruction, especially the fundamental principles of syntax and word-formation; of composition exercises, written and oral, including some colloquial practice. German Ba represents the equivalent of the intermediate College Entrance requirement and likewise the minimum requirement for a thorough working knowledge of the language. It is equivalent to two-thirds of German B.

Text-books required at the beginning are: Thomas's Practical German Grammar, 3rd ed.; Hervey's Supplementary Exercises to Thomas's Grammar (3rd ed., Holt); Baumbach's Der Schwiegersohn, edited by

Bernhardt (Heath).

Columbia University, University Hall, 301. Thirty sessions. Saturdays 9-11 A. M. First session October 3rd. Fee \$20. (Four points.)

### E. German B1b-B2b-Composition and Easy Colloquial Practice. Dr. BRAUN

This course is open only to those taking German B1a-B2a or German 5-6, and is intended to supplement German B1a-B2a for those who may wish to obtain credit equivalent to that of German B in Columbia, Barnard, or Teachers College. It affords additional opportunity for composition work, particularly for impromptu class exercises. The reading in this course is selected with reference to that purpose and to the provision of material for easy colloquial practice. The course is recommended to those who wish to take German 11-12 the following year. The text-book required at the beginning is Baumbach's Sommermärchen (Holt).

Columbia University, University Hall, 301. Thirty sessions. days II A. M. First session October 3rd. Fee \$10. (Two points.)

E. German 5a-6a-Advanced Course. Selected Works of Goethe, Schiller, and Lessing. Professor HERVEY

Intended for students who have had German B or its equivalent. The work of this course comprises the reading and study of representative works, chiefly dramatic, of Goethe, Schiller, and Lessing, and a brief survey, by lecture, of the history of German literature from the accession of Frederick the Great to the death of Schiller. The course aims to acquaint the student with some of the masterpieces of the classical period, partly by reading and discussion in class, partly by private study and occasional written reports (in English), in the preparation of which a printed syllabus will be followed. Much attention will be given to the place of these works in the careers of the respective authors, and to their contemporary social and political significance.

On the linguistic side the course aims to increase the student's command of vocabulary and idiom, by means of sight-reading and translation supplementary to his prepared work, and, in particular, to promote facility in reading and interpreting the text without the medium of translation.

This course is equivalent to one-half of German 5-6, as given in Columbia and Barnard College. Text-books required at the beginning are: Lessing's Minna von Barnhelm, edited by A. B. Nichols (Holt) and Emilia Galotti, edited by M. Winkler (Heath); Rolleston's Life of Lessing

("Great Writers" series).

Columbia University, University Hall, 314. Thirty sessions. Saturdays 9.30-10.50 A. M. First session October 3rd. Fee \$15. (Three points.)

E. German 23a-24a-History of German Civilization. Lectures and readings. Dr. RICHARD

The course will offer in a series of progressive lectures a survey of the history of German civilization from pre-historic times to the present. It will consider the main intellectual and social forces at work in the evolution of German national life, as expressed in the products of German genius and in the character of the modern German.

The course is of especial interest to teachers of German literature,

language, and history.

Columbia University, University Hall, 314. Thirty sessions. Mondays 4 P. M. First session September 28th. Fee \$10. (Two points.)

E. German 103-104—Goethe's Faust. Professor Hervey

Intended for students who have had German 5a-6a, or equivalent. This course will consist in the reading and interpretation, by lecture and

discussion, of Faust, the First and Second Parts.

The main object of the course is to help the student to the enjoyment of Faust as poetry. Careful attention is given to its genesis and its significance in the study of Goethe's life and works, as also to its ethical import and its artistic character as a whole. Incidentally the course will give opportunity for a survey of the main currents of the poet's activity during his whole career. Similarly, some account will be taken of the history and development of the Faust legend before Goethe.

It is expected that students taking this course will be familiar with the facts of Goethe's life (as obtainable, for example, from Sime's Life of Goethe, published in the "Great Writers" series), and with the more commonly read of his works. Especially is it desirable that they be acquainted with his earlier writings, notably Götz von Berlichingen, Werthers Leiden, and Egmont. The reading of Dichtung und Wahrheit, especially books 5-15, is also recommended.

Students will require for this course: Goethe's Faust, First and Second Parts, 2 vols., edited by Calvin Thomas (Heath).

Columbia University, University Hall, 314. Thirty sessions. Saturdays II A. M.-12.20. First session October 3rd. Fee \$15. (Three points.)

T. C. German 141-142-Modern German Syntax. Lectures, discussions, and reports. Professor Bagster-Collins

This course is planned to give intending teachers a detailed account of modern German syntax. The various topics are treated historically in so far as is necessary for a better understanding of syntactical usage of the present day. Representative texts used in high schools and colleges furnish the material for critical study. Open only to students who have had German 51-52, or its equivalent.

Teachers College, 230. Sixty sessions. Tuesdays and 7 3 P. M. First session September 24th. Fee \$30. (Four points.) Tuesdays and Thursdays

T. C. Education 169-170-Theory and Practice of Teaching German in Secondary Schools. Lectures, discussions, reports, and practical Professor BAGSTER-COLLINS work.

Practical work must be arranged with the instructor before regis-

tration.

This course deals with the general principles underlying the teaching of living languages, with the special educational value of German, with methods and theories of teaching, and with the organization of German instruction in secondary schools.

Prerequisite: Education A or 19-20, and at least 18 points in college German, including German 51-52, or its equivalent; prerequisite

or parallel, Education B or 105–106.

Teachers College, 230. Ninety sessions. Mondays, Wednesdays and Fridays 3 P. M. First session September 23rd. Fee \$45. (Six points.)

E. German I-Masterpieces of German Literature.

Professor Coar (Adelphi), Fife (Wesleyan), Hervey (Columbia), von Klenze (Brown), Thayer (Princeton), Thomas (Columbia), Tombo (Columbia), and others.

This course is given in co-operation with the Germanistic Society of America in furtherance of its work of extending the ideas and influence

of German civilization. It is open to the public without fee.

It will give, in a series of fifteen public lectures by professors of Columbia University and other Universities, a survey of German literature from the Middle Ages to Wagner. The following topics and selected works from the following authors will be treated among others: the Nibelungenlied, Wolfram's Parzifal, Walter von der Vogelweide, Hans Sachs,

Lessing, Schiller, Goethe, Heine, Wagner.

Columbia University, Schermerhorn, 305. Fifteen sessions. Tuesdays 8 p. m. First lecture October 20th. Tickets of admission may be procured without charge from the corresponding secretary of the Germanistic Society, Columbia University, or from the office of the Director

of Extension Teaching.

#### HISTORY

E. History A1-A2—Epochs of History.
Professor Shotwell and Mr. Hayes This course is intended to furnish the student with a broad conception of historical phenomena, suitable in an introduction to the study of history in the college and the University. Attention is directed to those political, economic, and intellectual achievements of the past which have contributed most to our present civilization. Some attention is paid to historical methods and bibliography.

The text-books are Robinson, History of Western Europe, and Robinson and Beard, Development of Modern Europe.

The course is given in two parts, either of which may be taken alone:

E. History A1a-A2a. Professor SHOTWELL

These lectures cover the main movements in European History. Among the subjects treated are: Ancient History in the light of Recent Discoveries; the Significance of Greek History; the Roman Republic and Empire; the Age of Constantine; Feudalism; Mohammedanism and the Crusades; Mediaeval Culture and the So-called Renaissance; the Reformation; the Old Régime in Europe; the French Revolution; Napoleon; The Industrial Revolution; Modern Germany, France, England, Russia; World Politics; and Modern European, Problems The Industrial Revolution; Modern European Problems.

World Politics; and Modern European Problems.

Wed-

Columbia University, University Hall, 327. Thirty sessions. Wednesdays 4 P. M. First session September 30th. Fee \$10. (Two points.)

E. History A1b-A2b. Two hours weekly.

Mr. HAYES

Mr. HAYES The work in these hours is of the nature of informal discussion. The field outlined in the lecture course is here taken up in detail and studied from both text-books and readings from the sources.

Columbia University, University Hall, 327. Sixty sessions. Mondays and Fridays 4 P. M. First session September 28th. Fee \$20. (Four points.)

Students are advised to register for the whole course E. History

A1-A2. Fee \$30. (Six points.)

E. History 7-8-Civics. See E. Politics 7-8.

E. History 9a-10a-Modern European History. Professor BEARD

This course is designed as an introduction to modern national and international problems. The principal topics for lectures and discussions will be the old régime in Europe, the French Revolution with reference to political and economic changes, the work of Napoleon in re-shaping the map of Europe and instituting reforms in France, the Vienna Settlement, the revolution of 1830, the development of Italian and German unity, the Third French Republic, the rise of Russia, modern social problems, and European imperialism in Africa and the Orient. The textbook will be Robinson and Beard, The Development of Modern Europe.

Columbia University, Fayerweather, 304. Thirty sessions. Saturdays II A. M. First session October 3rd. Fee \$10. (Two points.)

E. History 11a-12a-English History. Professor BEARD

This course will consist principally of lectures on thirty selected topics representing political, religious, and economic aspects of the development of England from its origins to the present time. The chief subjects will be the Formation of the English kingdom, Anglo-Norman feudalism, Magna Carta, the Origin of Parliament, the Church in the Middle Ages, the Protestant Revolt, the Puritan Revolution, the Expansion of England, Parliamentary Reform, and Modern Social Questions. The lectures will be supplemented by discussions of topics based on the instructor's Introduction to the English Historians.

Columbia University, Fayerweather, 604. Thirty sessions.

days 10 A. M. First session October 3rd. Fee \$10. (Two points.)

E. History 13c-14c-Contemporary American History.

Mr. HAYES

E. History 13-14 is given in three parts, of which the present course above is the third and last. The first part, treating of the origins of the

history of the United States, will be given in 1909-10.

This course consists of lectures and informal discussions explanatory of the political, social and industrial problems of the United States at the present time. The principal topics will be the results of the Civil War and the reconstruction of the nation, the political parties, the growth of industry and commerce, the tariff, the trusts, the labor movement, rate regulation, territorial expansion, the United States as a world power, the Spanish War and colonial problems.

Teachers College, 322. Thirty sessions. Saturdays 10 A. M. session October 3rd. Fee \$10. (Two points.)

T. C. History 51-52—The Literature of American History. Lectures, readings, and reports.

Professor Johnson

Emphasis is laid in this course upon the elements that seem essential to an intelligent reading of the literature of American history. After a brief account of the materials and methods of historical study in general, some of the special problems of historical writing in America are examined and illustrated. The readings assigned include examples of important letters, diaries, journals, memoirs, speeches, autobiographies and biographies, as well as the most important general and special histories. The historical value of the treatment of certain familiar episodes by poets, novelists, and authors of books for children is investigated and some attention is given to the claims, made in behalf of such writings, as to atmosphere, interest, and availability.

Teachers College, 322. Sixty sessions. Tuesdays and Thursdays 3 P. M. First session September 24th. Fee \$30. (Four points.)

## HOSPITAL ECONOMICS

T C. Hospital Economics I-Home Care of the Sick.

This course aims especially at preventive measures, home hygiene, and the care of the sick under those conditions in home life in which professional nursing is not required. It is a non-professional course, in no wise a preparation for nursing. The course is, however, conducted by a trained nurse.

Teachers College, 235. Fifteen sessions. Tuesdays 2 P. M. First session October 13th. A second section may be arranged, if desired, to begin February 2nd. Fee \$7.50. Requires ten students. (Not credited

towards degree or diploma.)

T. C. Hospital Economics IIa—Infancy, Its Hygiene and Nurture.

Professor Wood, Dr. McCastline, and assistant

This course consists of two parts either of which may be taken

separately:-

I. A series of fifteen lectures by Professor Wood on the family and the child, and the hygiene and nurture of infancy, with suggested readings, discussions and papers. These lectures are the first half of a course on Hygiene of Childhood and Adolescence. Those desiring to continue the lectures on Hygiene of Adolescence (second half-year) should register their work as T. C. Physical Education 187-188. (Two points.)

T. C. Hospital Economics IIb. Ten practical talks and demonstrations for women on the care of infants, including such topics as bathing, clothing, foods and their preparation, milk modification, sickness and emergencies. The instruction in milk modification will include laboratory practice and will be given by Dr. McCastline; the other topics by a trained nurse.

Teachers College, 235. Saturdays II A. M. First session October 17th. Requires ten students. (Not credited towards degree or diploma.) Fee for either part \$7.50; for both \$15.

T. C. Hospital Economics 3-4-Hospital Organization and Administration. Lectures, conferences and excursions.

Miss Nutting and special lecturers

This course deals in detail with the various hospital departments; the office, its system of record-keeping and accounts; the wards, free and private, their furnishing, equipment, service and management; the purveyor, the kitchen and accessories; the purchasing, storage and distribution of food; dietaries; the matron or housekeeper; linen and domestic supplies, their purchase, distribution and use; the laundry, equipment, methods of work; the pharmacy, cost of drugs, their care and use; surgical supplies, methods of purchasing, preparing and distributing; economy and waste.

Teachers College, 235. Thirty sessions. Wednesdays 3-5 P. M. First session September 23rd. Fee \$30. (Four points.)

#### **ITALIAN**

See under Romance Languages and Literatures.

# LIBRARY ECONOMY

E. Library Economy I. Lectures and practice. Miss BALDWIN
This course is intended to give the training necessary to equip the
student for technical work in public, normal school, and private libraries.
It will include bibliographical and technical instruction in cataloguing,

classification, accessioning, shelf-listing, binding, loan systems, book buying, reference work, school library work, general and special bibliographies, brief history of book-making, history of libraries, modern libraries, their organization and administration, library associations, commissions.

Teachers College, 222 and 230. Sixty sessions. Tuesdays and Fridays 4 P. M. First session October 6th. Fee \$20. Requires twenty

students.

#### MANUAL TRAINING

T. C. Manual Training 1-2—Handwork for the Primary Grades.

Practical work, and discussion of processes.

Miss Hyde

This course deals with those typical forms of constructive work that are practical in the lower grades of the elementary school, and which at the same time are adapted to the capacities of young children. It aims to present a study of this field fitted both to the needs of the special teacher or supervisor, and to those of the regular grade teacher. Processes and projects are considered both in their relation to the subject-matter of the arts and industries and to the needs of children in the various grades. A special study is made of the æsthetic possibilities of the work and also of the relation to school conditions and to the course of study. The occupations studied include weaving, sewing, basketry, pottery, and typical constructions in paper and cardboard, wood and metal. In Section III, the work is considered rather in its relations to the rest of the course of study than from the standpoint of technique.

The design of projects executed in this course is dealt with in T. C. Manual Training 9-10, which should, wherever possible, be taken as a

parallel course.

Teachers College, 236. Section III, Tuesdays and Wednesdays 3-5 P. M. Fee \$30; laboratory fee \$2. (Four points.)

T. C. Manual Training 12-2a. Handwork for the Primary Grades.

Practical work.

Miss Weiser

A briefer course dealing with basketry, weaving, and pottery. Open to students who obtain the consent of the head of the depart-

ment.

Teachers College, Horace Mann Schools, 5th floor. Twenty sessions. Saturdays 9 A. M.-12. First session September 26th. Fee \$15; laboratory fee \$2. (Two points.)

T. C. Manual Training 5a-6a-Wood-Working for Elementary or Secondary Schools. Shopwork.

Mr. Noyes

This course aims primarily at a training in the technical processes of wood-working as a basis for instruction in the elementary school. The projects dealt with are considered from the side of decoration and structural design, and processes of staining, finishing, burning, simple carving, and coloring are introduced. The use and action of all the most important wood-working tools are studied and methods of presentation are considered. A second year's work of advanced grade will be given at the same time to those fitted for it. The cost of material for these advanced students will be charged extra.

Teachers College, 232. Twenty sessions. Saturdays 9 A. M.-12. First session September 26th. Fee \$15. Laboratory fee \$1. (Two points.)

T. C. Manual Training 7-8-Mechanical Drawing.

Section II.—A briefer course in mechanical drawing, arranged with special reference to the needs of students in the Department of Fine Arts.

Teachers College, Room 327. Section II. Thursdays 3-5 P. M. First

session September 24th. Fee \$15. (Two points.)

# T. C. Manual Training 17-18—Constructive Design.

Professor RICHARDS

This course deals with the design of constructions in wood, typical of such work in the grammar grades and high school. Problems are considered from the standpoint of function, structure, material, form, and proportion.

Prerequisite: Fine Arts 13-14.

The execution of the projects designed in the course is dealt with in Manual Training 15-16, which should be taken as a parallel course.

Teachers College, 243. Wednesdays 3-5 P. M. First session September 23rd. Fee \$15. (Two points.)

# E. Manual Training 35-Elementary Bookmaking.

Miss FREEMAN

This course affords instruction in the underlying principles and processes of bookmaking. The practice work includes the making of portfolios, desk pads, note-, scrap-, and guest-books, mending of books, re-

binding of old books and magazines.

Students who have had elementary training in applied design will find in this course the foundation for the application of wood-block and stencil decoration, lettering by hand, and illustration. The course is of special value to teachers of art in elementary schools and students of hand-work.

No special tools are needed.

Teachers College, 243. Twenty sessions. Saturdays 9 A. M.-12. First session October 17th. Fee \$15; studio fee, including cloth, paper and board, etc., \$2.50. Requires twenty-five students. (Two points.)

### **MATHEMATICS**

See also under Evening Technical Courses.

# E. Mathematics A-Algebra, Geometry and Trigonometry.

Mr. Maxson

The course in geometry will cover as much of the subject-matter of solid and spherical geometry as is presented in the standard college text-books. Book-work will be supplemented by suitable exercises in the invention of constructions and demonstrations. The course in algebra will include mathematical induction, permutations and combinations, determinants, the theorem of undetermined coefficients with applications, and the elementary principles of logarithms. The course in trigonometry will embrace the definitions and properties of the trigonometric functions, the deduction of important trigonometric formulæ, the use of tables of logarithms, the solution of plane triangles, and various practical applications.

Columbia University, Fayerweather, 615. Thirty sessions, two hours each. Saturdays 10 A. M.-12. First session October 3rd. Fee \$20. The instructor will endeavor to complete the entire course of Mathematics A.

(Four or six points.)

#### E. Mathematics 21-22-Analytical Geometry and Calculus.

Dr. LING

This course will consist of analytical geometry for the first half-year, and of calculus for the second half-year. In the first part attention will be directed especially to the following matters: The methods of coördinates, the correspondence between geometric loci and algebraic equations, problems relating to loci, and the study of loci whose equations are of the first and second degrees. In the second part the development will be based upon the problems of tangents, velocities and quadratures, and the Differential and Integral Calculus will be exhibited as comple-

mentary parts of one subject. The object of the course will be to fix the attention upon the central ideas of the subjects, and, by means of discussions and suitable problems, to render familiar various applications of the theory. The work in class will be conducted by means of lectures and recitations.

Columbia University, Room 304, Fayerweather. Thirty sessions, two hours each. Saturdays 10 A. M.-12. First session October 3rd. Fee \$20.

(Four points.)

T. C. Mathematics 53-54-Applied Mathematics for Teachers in Secondary Schools.

This is a semi-professional course intended primarily for teachers in the high school who are specializing in mathematics. Such teachers are advised to elect as many courses as possible in mathematics, subject to the direction of the head of the department. None of the courses in pure mathematics, however, meets a pressing demand of modern education for the direct bearing of trigonometry, higher algebra, analytic geometry, and the calculus upon the work of the high school. This course considers the bearing of these subjects upon secondary mathematics, their application to physics, simple mechanics, cartography, elementary astronomy, and mensuration. To this end, an elementary course in analytic geometry is prerequisite, but the applications of the calculus come late enough to allow of that subject being taken as a parallel course if necessary.

Teachers College, 211. Ninety sessions. Mondays, Wednesdays, and Fridays 3 P. M. First session September 23rd. Fee \$45. (Six points.)

T. C. Education 279-280—Practicum in the History and Teaching of Mathematics. Professor SMITH

Prerequisite: Mathematics 151-152.

Teachers College, 212. Sixty sessions. Mondays and Wednesdays 3 P. M. First session September 23rd. Fee \$30. (Four points.)

#### MUSIC

E. Music 1-2—General Musical Course. Professor McWHOOD This course is designed to give a general idea of music from its historical and æsthetic side, the chief purpose being to furnish the basis for an intelligent appreciation of musical compositions. It treats of the origin and development of the art of music, viewing it as an element of liberal culture. It is illustrated throughout with music. No previous knowledge of music is required.

Columbia University, Mines Building, 608. Thirty sessions. Wednesdays 4-5 P. M. First session September 30th. Fee \$15. Requires a

registration of twenty students. (Two points.)

T. C. Music 1-2-Sight Singing. Professor FARNSWORTH

This course is intended for the general student who wishes a practical course to develop his own powers, and at the same time to indicate a method for teaching and judging school music. The course gives practice through songs first, for tone quality; and second, for the development, definition, and association of feeling for tone relationship with notation.

Teachers College, 116. Ninety sessions. Mondays, Wednesdays, and Fridays 3 P. M. First session September 23rd. Fee \$30. (Four points.)

E. Music 5-6-Voice Culture. Miss DASCHBACH

This course provides for individual instruction and guidance in tone

production, with reference to the singing voice.

Teachers College, two sessions weekly, at days and hours to be determined at the convenience of the students. First session in the first

week of October. Each class will be limited to four students. Fee \$25 each half-year. (Four points.)

E. Music 7-8-Harmony.

Professor McWHOOD

This course treats of general theory, harmony, chords, and their mutual relationships, non-harmonic tones, modulation, and analysis. The ability to harmonize a given melody in soprano or in bass, is acquired in

Columbia University, Mines Building, 608. Thirty sessions. Fridays 4-5.30 P. M. First session October 2nd. Fee \$20. (Three points.)

T. C. Music 13-14-Piano Music for Schools.

This course is intended for those who have sufficient piano technique to play pieces of medium difficulty. It aims (a) to cultivate ability to accompany effectively, giving practice in chords and their progressions and transpositions; and (b) to give a knowledge of piano music appropriate for awakening and developing musical taste, and for use in kindergarten, opening exercises, and calisthenics.

Teachers College, Room 118. Thirty sessions. Tuesdays 4 P. M. First session September 20th. Each class limited to five students. Fee \$35.

(Two points.)

E. Music 13-14—Pianoforte for Pianoforte Teachers. Class work. Mr. CADY

Objects: 1. Principles and processes of music-study and pianoforte expression (playing) and teaching; 2. Rhythmic, harmonic, melodic, technical, and poetic analysis and interpretation of pianoforte music to be used for teaching in the various grades; 3. Preparation of artistic programmes of child-music.

This course is intended to supplement the Normal course, by applying it to pianoforte study in grades beyond the elementary. Teachers of the pianoforte are therefore urged, but not required, to take the Normal

Prerequisites: ability to play with some degree of technical and artistic finish Bach, Little Preludes (Reinecke Ed.) or Two-voiced Inventions, and the simpler works of Mozart, Schumann, Beethoven (Op. 14, No. 2), Mendelssohn, Chopin.

Teachers College, Students' Alumni Room, Horace Mann Schools. Thirty sessions. Tuesdays 4-5 P. M. First session September 29th.

Classes limited to six members. Fee \$40. (Two points.)

T. C. Music 17-18—Piano Music—Advanced Course. Miss Zerbe This course gives (a) individual instruction in the technique and inter-

pretation of suitable music from classic and modern composers; and (b) practice for gaining freedom in forming designs by means of chords and rhythmic melodies expressed at the keyboard.

Prerequisite: Music 13-14, or its equivalent. Teachers College, Room 118. Thirty sessions. Mondays 4 P. M. Fee \$30; studio fee \$30, including the use of a practice piano one hour a (Four points.) Class limited to five students.

E. Music 17-18—Pianoforte, Advanced Course. Mr. CADY

Course in the science and art of pianoforte interpretation of music, for amateur and professional musicians.

Object: To study principles of music interpretation, and their application in the development of artistic expression (playing); study of en-

semble music.

Prerequisites: Ability to play with technical accuracy works of the character of the first Prelude and Fugue of Bach, A-Major concerto by Mozart, Sonata in E (op. 14, No. 1) by Beethoven, Aufschwung by Schumann, C-sharp Waltz by Chopin.

Teachers College, Students' Alumni Room, Horace Mann Schools. Thirty sessions. Tuesdays II A. M. First session September 29th. Additional sections will be formed as the registration warrants. In classes limited to four, fee \$45; in classes limited to three, fee \$60. (Two points.)

T. C. Music 19-20-Voice Culture and Phonetics. The development and use of the voice in speech. Miss LATHAM

First half-year: study of the vocal instrument, ear training, qualities of voice, attention to individual needs, the use of the voice in the routine

of the schoolroom.

Second half-year: articulation, enunciation, pronunciation, the English elemental sounds, syllabification, accent, explanation of common errors, correction of individual faults, the use of phonic drills in the school-

The course is planned especially for teachers of reading and singing. Teachers College, 116. Sixty sessions. Tuesdays and Thursdays 4 P. M.

First session September 24th. Fee \$30. (Four points.)

E. Music 23-24—Kindergarten Music and Games. Miss Hofer This is a course of lecture lessons, discussing sound, rhythm, song development, and vocal expression in their relation to music for children. These lectures will be accompanied by illustrated song programs which will serve as a course in method for kindergartners, primary teachers,

and those intending to do supervisory work in music.

The subject will be treated in three main divisions: (a) Sound perception—primitive music; (b) Song development: interpretation, voice;

(c) Rhythmic development: plays, games, folk-dances.
Teachers College, Room 256, Thompson. Thirty sessions. days 9 A. M. First session October 3rd. Fee \$10. Either part—Music, first half-year, or Games, second half-year, may be elected separately, fee \$5. (For credit both parts must be taken—two points.) Requires the registration of five students.

E. Music 25-26—Indoor and Outdoor Games. Miss Hofer

A course in organized play, for teachers in graded schools, vacation schools, play-grounds, and social settlements. This course will give organized play material, rhythms, marches and games, relative to physical training, industry and literature; songs and games of the festivals of the seasons—Thanksgiving, Christmas, National Days and May Day; singing folk-games, Swedish, German, Russian, and other folk-dances.

In the second half-year the work will be devoted to playground games; the natural games of younger children, both without apparatus and with very simple equipment: games of running, throwing, jumping, hopping, pulling, racing, and with simple toys; winter sports; Greek, Eskimo, Indian, Chinese, Japanese games; children's play rhymes, outdoor folk

games and dances.

Teachers College, Thompson, 256. Thirty sessions. Fridays 4 P. M. First session October 2nd. Fee \$10. Requires the registration of five students. (Two points.)

E. Music 27-28—Supervisors' Course—Songs for Schools Use. Recitals and class-work. Miss Hofer

This course is devoted to the study of school programmes of folk and national songs:-

(a) Related to literature: Folk and fairy lore in children's literature; Indian music—myths, songs and dances; songs of industry—traditional

and modern; child life in song—Stevenson, Sherman, Field.

(b) Related to race, history and geography; Songs of the north—Scandinavia; songs of Russian Empire; songs of German Empire; songs of British Isles-England and Scotland, Ireland and Wales; songs of America; songs of Eastern Europe.

(c) Related to traditions and festivals: The origin and significance of the folk festival; the autumn festival, harvest customs, songs, games and dances; the winter festival, traditions of Christmas, carols and games; the spring festival—May Day songs, customs, and dances; the midsummer festival, St. John's Eve, songs, customs, and dances; the patriotic birthdays and historic occasions, songs, games, and dramatizations.

Teachers College, Thompson, 256. Thirty sessions. Fridays 5 P. M. First session October 2nd. Fee \$10. Requires five students. (Two

points.)

E. Education 81a-82a-Elementary Course in Music Education. Theory and practice. Mr. CADY

The course is founded upon the principle that technical expression should be the product of, and governed by, music conception. The course is of essential value to teachers of music—vocal, instrumental, public school, kindergarten, and supervisors. The course consists in:

a. Science of Music: I. Rhythm, harmony, melody; 2. Study and writing of melody and rhythm; 3. Analysis of notation; 4. Elementary

comparison of the rhythms of music and poetry.

b. Theory and Practice of Teaching: 1. Elementary study of principles and processes of conceptive education; 2. Application to the education of the child; 3. Practical demonstration by members of the class; 4. Systematization of elementary music study; 5. Study of elementary technique—manual (piano) and vocal.

Prerequisites: Command over simple melody; a general knowledge of music. Piano teachers must be able to play compositions such as the

easier works of Schumann and Mendelssohn.

Teachers College, Horace Mann Schools, fifth floor. Thirty sessions. Tuesdays 1.30-3 P. M. First session September 29th. Class limited to ten. Fee \$35. (Three points.)

E. Education 81b-82b-Advanced Course in Music Education. Designed especially for pianoforte teachers of music.

The course consists of:

a. Science of Music: 1. Harmony-conceptive and analytic, as a basis for the study of pianoforte music; 2. Counterpoint as applied to pianoforte music; 3. Rhythm as basis of form and technical development; 4. Form, analytic and conceptive; 5. Technique—science and practice.

b. Theory and Practice of Teaching: 1. Principles of conceptive study applied to the music education of pianoforte students; 2. Polyphonic study; 3. Systematization of subject-matter, including elementary harmony; 4. Material—artistic and technical.

Prerequisite: E. Education 81a-82a or its equivalent.

Teachers College, Horace Mann Schools, Students' Alumni Room. Thirty sessions. Thursdays 1.30-3 P. M. First session October 1st. Class limited to five. Fee \$40. (Three points.)

## NATURE STUDY

T. C. Nature-Study 1-2—Biological Nature-Study. Lectures, laboratory work, field work, and reading.

Miss Broadhurst, Professor Bigelow, and Miss Stackpole This course is designed for those preparing to teach nature-study and those who need some general knowledge of animals and plants as an introduction to pure science courses in botany and zoology or for the purposes of liberal education. Common living things are considered from the point of view of nature-study as distinguished from that of pure science, that is, primarily from the standpoint of everyday human interests rather than on the basis of the principles and generalizations characteristic of the regular college courses in botany and zoölogy. Three-fourths of the time is devoted to individual study in the laboratory and in field work; the lectures aim to interpret the facts gained from the observational study. On both the plant and animal sides of this course special attention is given to topics of interest in gardening and agriculture.

Teachers College, 300. Section II. Tuesdays and Thursdays 4-6 р. м.

First session September 24th. Fee \$30. (Four points.)

T. C. Nature-Study 6-Nature-Study for Primary Schools. Lectures, reading, and work in field, garden and laboratory.

Miss Broadhurst and Professor Bigelow

A selection from T. C. Nature-Study 1-2 and 3-4 of material especially suitable for students with major subjects in kindergarten or primary teaching.

T. C. Geography 53 is recommended as a complementary course. Teachers College, Room 300. Fifteen sessions. Saturdays 10 A. M.-12. Second half-year. First session February 6th. Fee \$15. (Two points.)

T. C. Education 183-Lectures on the Teaching of Nature-Study. Professors Bigelow and Woodhull

This course is designed for students who expect to become special teachers or directors of general nature-study, and is also suited to those who as school officers or high-school teachers need knowledge concerning nature-study and its relations. It deals with the educational bearings materials and methods of general nature-study, biological and physical, for elementary schools; school-gardens, elementary agriculture, and elementary physiology will be included. Students specializing in naturestudy will supplement this course with T. C. Education 68 (see below) in the second half-year.

Prerequisite: T. C. Education A or 19-20, and Nature-Study 1-2, 3-4, and prerequisite or parallel, Education B or 105-106, and Education

Teachers College, 304. Thirty sessions. Wednesdays and Fridays 3 P. M. First half-year. First session September 23rd. Fee \$15. (Two points.)

#### PHILOSOPHY

E. Philosophy Aa-Introductory Psychology. Lectures and discussions. Dr. Brown

This course is intended to acquaint the student with the psychological theories of fundamental facts of mental life such as habit, association, attention, reasoning and will, in a fashion to prepare him both for a better understanding of current psychological discussions and for further work in philosophy and in teaching.

This course and E. Philosophy A1a-A2a-Introductory Logic are useful introductions to any of the other courses in Philosophy and are

intended to be given in alternate years.

James's Psychology (Briefer Course) will be used as a text.

Columbia University, Library, 406. Thirty sessions. Sa 9.30-11 A. M. First session October 3rd. Fee \$15. (Three points.)

E. Philosophy Ab-Problems of Philosophy. Lectures, Readings, and reports. Dr. BROWN

It is the aim of this course to make students acquainted with the chief problems of philosophy as they are forced upon all who undertake to orient themselves in life. For this purpose a number of short philosophic classics, such as Descartes' Discourse on Method, Berkeley's Treatise Concerning the Principles of Human Knowledge, and Hume's Inquiry will be read and discussed. Students will by this means be enabled to become acquainted with certain masterpieces of philosophic literature as well as to clarify and develop their own points of view.

Students desiring credit in this course will be required to hand in several short theses.

Columbia University, Library, 407. Thirty sessions. Saturdays II A. M.-

12.30. First session October 3rd. Fee \$15. (Three points.)

E. Philosophy 41a-42a-Principles of Æsthetics.

Mr. PITKIN This course is designed for students in art, literary and dramatic criticism and psychology. The psychological origins of art works will be sought; the psychological factors involved in the enjoyment and appreciation of nature, painting, poetry, music, tragedy, and comedy will be analyzed; and the wider bearings of æsthetic pleasure upon practical

The special topics assigned to students will be chosen with reference to individual needs, so that the direct bearing of æsthetic theory upon the arts and criticism may be made clear. Special privileges have been

extended by the Metropolitan Museum to students taking this course.

Columbia University, Library, 406. Thirty sessions. Saturdays 10

A. M. First session October 3rd. Fee \$10. (Two points.)

E. Philosophy 161a-162a-History of Ancient Philosophy. Lectures and discussions.

This course will attempt to trace the development of the philosophic impulse prior to the beginnings of modern philosophy in the 15th century. The Greek thinkers will be studied with special reference to the relating of types of philosophic theory to the civilization in which they are developed and to the constant interplay which exists between the ideals and attainments of men, and the transformations of the Greek philosophies in the Middle Ages, as presenting the spectacle of philosophy and religion striving for unity.

Windelband's History of Ancient Philosophy will be used as a text. This course is intended to alternate every other year with E. Philos-

ophy 161b-162b-History of Modern Philosophy.

Columbia University, Library, 407. Thirty sessions. Saturdays 9 A. M. First session October 3rd. Fee \$10. Requires fifteen students. (Two points.)

T. C. Philosophy 205—Logical Analysis. Professor WOODBRIDGE
An analysis of concepts such as "terms," "relation," "element,"
"principal," "cause," etc., by means of which bodies of knowledge are systematized. The analysis will aim at defining the concepts and exhibiting their metaphysical status. Individual reports and discussions. Open to graduates only.

Columbia University, Library, 405. Thirty sessions. First half-year. Mondays and Wednesdays 3 P. M. First session September 23rd. Fee

\$15. (Two points.)

life will be briefly discussed.

### PHYSICAL EDUCATION

The privileges of the Thompson (Physical Education) Building are open at certain hours of the day to women and girls. In this way they may obtain, under certain conditions, instruction in gymnastics, swimming. dancing and fencing; and general use (without instruction) of swimming pool, bowling alleys and hand-ball courts.

On and after October 27th, 1908, the Thompson Building will be open on Tuesday and Thursday evenings, except during College vacations, for twenty-five weeks. Hand-ball courts, bowling alleys and classes in social dancing will be open on the evenings mentioned to men and women. The swimming pool and gymnasium will be open to women only.

Detailed information concerning hours and fees may be obtained by addressing the Secretary, Thompson Building, Teachers College.

T. C. Physical Education 1-2-Gymnastics-Elementary Course. Miss MARCH

The work of this course is arranged with reference to the needs of the individual student as indicated by the physical examination and study of personal tendencies. The hygienic, corrective, and educative effects of exercise are sought in the arrangement of movements. The exercises include those with and without apparatus, gymnastic drills, and games.

Open only to women.

Teachers College, Room 464, Thompson, Tuesdays and Thursdays 4 P. M. First session September 23rd. Fee \$15. (Two points.)

T. C. Physical Education 3-4-Gymnastics-Advanced Course. Miss March

This is a continuation of T. C. Physical Education 1-2. variety of movements is increased according to the progress and ability of the student.

Open only to women.

Teachers College, Thompson, 464. Wednesdays and Fridays 4 P. M.

First session September 23rd. Fee \$15. (Two points.)

T. C. Physical Education 9-10—Practice. One lecture and six hours of practice each week. 8 points. Dr. Skarstrom, Miss Crawford, Miss Fotheringham, Miss March, Mr. Holm, and assistants

The lecture course treats the dance as a form of art, and presents the evolution of the dance drama and the relation of the dance to the other arts of movement. The meaning of the dance is studied in relation

to its origin and place among primitive people.

The practice course aims to give a thorough training in elementary gymnastics, including free exercises with and without hand apparatus; exercises on the various forms of gymnastic apparatus; social dancing and elementary classic dancing; swimming, gymnastic games, games of skill, dramatic games and their historical development. The practice work in dancing follows the evolution of the dance through national

dancing. The technique includes the study of pantomimic action.

Teachers College, Thompson, 256. Lecture Thursdays 3 P. M.; practice daily 2 P. M., Saturdays 9 A. M. First session September 23rd. Fee \$60. (Eight points.) Students (women only) may register for instruction and practice in dancing only. T. C. Physical Education 9a-10a, lecture Thursdays 3 P. M.; practice Thursdays and Fridays 2 P. M.

Fee \$30.

E. Physical Education 89-90-Public and Social Hygiene. Professor Wood

This course includes the following topics: Responsibility of the individual for the health of the community; causes of preventable diseases; characteristics, habits, and modes of conveyance of disease germs; special measures for the prevention and control of tuberculosis, smallpox, malaria, yellow fever, diphtheria, rabies and other special forms of communicable disease; regulations applying to quarantine, disinfection and fumigation; sanitary principles relating to house construction and care; street cleaning, disposal of waste; supply of food, air and water; sanitation of public buildings; climatic hygiene, and hygiene of occupation.

Teachers College, Thompson, 164. Thirty sessions. Thursdays 4 P. M.

First session October 1st. Fee \$10. (Two points.)

T. C. Physical Education 121-122-The Dramatic Game. Prac-Miss Crawford tice.

This course presents the earliest forms of the dramatic game. Studies are made of children's games from all parts of the world, and

of the simplest dances and dramas of primitive people and of the folk of Europe. This course represents the practical work for 119-120.

Teachers College, 116. Tuesdays and Thursdays 5 P. M. First session

September 24th. Fee \$15. (Two points.)

T. C. Physical Education 187-188-Hygiene of Childhood and Adolescence. Lectures, reference reading, reports and discussions.

Professor Wood

This course will consider the life and education of the child from the standpoint of biologic values. The topics in the course include: hereditary and pre-natal influences affecting the life of the child; application of principles of biologic efficiency to care in infancy and childhood; hygiene of adolescence; methods of health instruction with reference to special phases of development.

This course is intended for advanced and graduate students.

Teachers College, Thompson, 164. Saturdays 10 A. M. First session September 26th. Fee \$15. (Two points.)

T. C. Education 289-290-Practicum in Physical Education.

Professor Wood

This course will deal with special problems in physical education and school hygiene. Training will be given in methods of investigation and a report will be required from each student on some practical topic.

Teachers College, Thompson, 164. Tuesdays and Thursdays 3 P. M. First session September 24th. Fee \$30. (Four points.)

### Evening Courses

Separate classes in gymnastics for men and women will be organized if there is sufficient demand for such instruction.

The swimming pool will be open to women only.

Fees for Evening Privileges.—Instruction in swimming, sixteen lessons, one-half hour each, tuition fee \$17.50; eight lessons, one-half hour each, fee \$12.50. Students are privileged to use the pool two half-hours a week, at stated hours, from the time the instruction ends to the end of the half-year.

Instruction in dancing, twelve lessons, one lesson weekly, one hour

each, fee \$10.

General use of bowling alleys and hand-ball courts for men: \$15 for those not otherwise connected with the institution.

General use of swimming pool, bowling alleys and hand-ball courts for women: \$15 for those not otherwise connected with the institution.

Class in gymnastics, with general use of the building: \$25 for those not otherwise connected with the institution.

Reduced rates for the evening privileges will be made for those connected with the university.

#### PHYSICAL SCIENCE

See also under Chemistry.

T. C. Physical Science 53-54-First Principles of Chemistry for Students of Domestic Science. Demonstrations and laboratory work. Miss VAN ARSDALE

Teachers College, 402. Saturdays 9 A. M.-12. First three-fourths of the year. First session September 26th. Fee \$22.50; laboratory fee \$2. (Three points.)

T. C. Education 191-192-Theory and Practice of Teaching Physical Science in Secondary Schools-Chemistry and Physics. Lectures, laboratory exercises, observation, and practical work.

Professor Woodhull and Miss VAN ARSDALE

This course covers the selection, arrangement, and treatment of

subject-matter suitable for secondary schools, and a study of equipment

and management of laboratories.

Prerequisite: Education A or 19-20, and at least 24 points in college science, at least 18 of which must be in chemistry and physics; prerequisite or parallel, Education B or 105-106.

Teachers College, 411. Class-work. Wednesdays 4-6 P. M. First

session September 23rd. Fee \$45. (Four points-class-work; two points

-practical work.)

T. C. Education 291-292—Practicum in Physical Science. Professor Woodhull

This course is devoted to the investigation of problems connected with the teaching of physical science in secondary and in normal schools. Teachers College, 411. Mondays 4-6 P. M. First session September

28th. Fee \$30. (Four points.)

#### POLITICS

E. Politics (History) 7-8-Civics.

Professor Duggan

This course will be a study of the government of the United States in its national, state, and local forms. Emphasis will be put upon government in its functional aspect rather than upon its mere anatomy. Attention will be directed to the organic character of governmental institutions and their manner of adjusting themselves to changing conditions, rather than to the dry details of forms. As municipal problems are the most vitally important of all American problems of government at the present time, the structure and functions of municipal governments will be given especial consideration. The historical and comparative methods will be used for purposes of explanation and illustration; and also that the course may be adapted to the scheme of study planned by the Committee of Seven. Though the work is intended for the general student of American government, the actual needs of the teachers of Civics will be constantly borne in mind. Students must provide themselves with a copy of A Syllabus of American Government, (to be procured at the College or the University Bookstore). The text-book will be Bryce's American Commonwealth.

Columbia University, Library, 406. Thirty sessions. Fridays 4 P. M. First session October 2nd. Fee \$10. Requires fifteen students. (Two

points.)

# ROMANCE LANGUAGES

#### French

E. French A1-A2-Elementary Course.

Mr. MULLER

The work will consist of the study of French grammar and syntax. In connection with the grammar, translation will be taken up, beginning with simple French texts. Reading and the elements of French composition will form distinct parts of the work during the second term.

Books: Downer, A First Book in French; Grandgent, Materials for

French Composition, Part III; Douay, An Elementary French Reader; Daudet, Trois Contes choisis; Laboulaye, Contes bleus; Vigny, Le Cachet

Columbia University, West Hall, 308. Sixty sessions. Tuesdays and Thursdays 4-5.30 P. M. First session September 29th. Fee \$30. (Six points.)

E. French B1-B2-Grammar, Reading and Composition. Professor Jordan and Dr. GERIG

The work will consist: 1st, of the study of French syntax; 2nd, of the reading and translation of French prose; 3rd, of translation from

English into French; 4th, of outside reading. As far as practicable, French will be the language of the class-room.

Books: Edgren, A Compendious French Grammar; Cameron, French Composition; Guerlac, Standard French Authors; Voltaire, Zadig; Lesage, Gil Blas (Cohn and Sanderson's edition); Sandeau, Mademoiselle de la

Seiglière; Balzac, Le Curé de Tours; La Fontaine, Fifty Fables; Molière, Le Bourgeois Gentilhomme; L'Avare.

Outside reading, during the first term: Thiers, Bonaparte en Egypte; during the second term: About, La Mère de la Marquise.

Columbia University, West Hall, 410 (Section I.). Sixty sessions. Mondays and Wednesdays 4-5.30 P. M. First session September 28th. Fee \$30. (Six points.)

Section II of this course will be given in Teachers College, Room 221. Mondays and Wednesdays 7.45-9.15 P. M. Dr. GERIG. Fee \$30. Requires

fifteen students.

E. French 1-2-General Introduction to the Study of French Professor Loiseaux Literature. Composition, reading, lectures.

The object of the course is to complete the elementary student's training in the French language, to make him acquainted with one or two works of each of the most important French authors, and to give him an outline of the development of French literature since 1600, so that he will be prepared to take up the study of each century as presented in the higher courses. The recitations are conducted mostly in French, especially during the second half-year.

Books: Pellissier, Précis d'Histoire de la Littérature Française; Corneille, Le Cid; Molière, Les Précieuses Ridicules and Le Misanthrope; Racine, Phèdre; Bossuet, Oraisons funèbres; Pascal, Pensées (Havet edition, Paris, Delagrave, 3 fr.); Voltaire, Prose (extracts), edited by Cohn and Woodward; Beaumarchais, Le Mariage de Figaro; Canfield, French Lyrics; Victor Hugo, Hernani, Ruy Blas; Musset, Trois Comédies;

Rostand, Cyrano de Bergerac.

The requirements in outside reading are, for the first half-year: Corneille, Polyeucte; Molière, Les Femmes Savantes, or Tartuffe; Racine, Iphigénie or Athalie; and for the second half-year one of the following works: Balzac, Eugénie Grandet; Michelet, Précis de la Révolution Française; Renan, Souvenirs d'Enfance et de Jeunesse; Taine, Corre-

spondence; A. Thierry, Récits des Temps Mérovingiens.
Columbia University, Fayerweather, 304. Sixty sessions. Mondays and Wednesdays 4-5.30 p. m. First session September 28th. Fee \$30. (Six

points.)

T. C. Education 165-166—Theory and Practice of Teaching French in Secondary Schools. Lectures, essays, discussions, reports of observation, and practice-teaching. Professor Conn

Prerequisite: Education A or 19-20, and at least 24 points in College French; prerequisite or parallel, Education B or 105-106.
Columbia University, West Hall, 300. Class-work. Tuesdays and Fridays 5 P. M. First session September 25th. Fee \$45. (Four points class-work; two points-practical work.)

#### Italian

E. Italian 1-2—Elementary Course. Grammar, reading, composi-Mr. BIGONGIARI

This course is primarily designed to prepare beginners for the study of Italian literature, and secondarily, to drill them as far as feasible in the practical use of the language.

Books: Grandgent, Italian Grammar, Italian Composition Book;

Bowen, Italian Reader; E. de Amicis, Cuore (Holt); Goldini, La Locan-

diera (Heath), Manzoni, I Promessi Sposi (Silver, Burdett); and parts of

Martini, Prose Italiane Moderne.

Columbia University, West Hall, 308. Sixty sessions. Wednesdays and Fridays 4-5.30 P. M. First session September 30th. Fee \$30. (Six points.)

#### Spanish

E. Spanish 1-2—Elementary Course. Grammar, reading, com-tion. Dr. Gill or Dr. Fitz-Gerald position.

The aim of this course is to impart an accurate reading knowledge of modern Spanish, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and, during the second term, special attention will be paid to Spanish composition.

Books: Loiseaux, Spanish Grammar; Elementary Spanish Reader; Spanish Composition; P. A. de Alarcón, El Capitan veneno; B. P. Galdós,

Marianela, Doña Perfecta; Carrión y Aza, Zaragüeta.
Outside reading: Valera, El Pájaro Verde; Lesage, Gil Blas (Padre

Isla's translation).

Columbia University, Havemeyer, 301. Sixty sessions. Mondays and Wednesdays 4.30-6 P. M. First session September 28th. Fee \$30. (Six points.)

E. Spanish 3-4—General Introduction to Spanish Literature.

Dr. Fitz-Gerald or Dr. Gill Composition.

Prerequisite: Spanish 1-2 or its equivalent.

First, the study of the language will be continued from E. Spanish 1-2 by a rapid review of grammar, advanced work in syntax, and writing short essays. Second, students will read one work from each of several

of the most important authors of the last three centuries.

Books: Hills and Ford, Spanish Grammar; Bello-Cuervo, Gramática Castellana; Joaquín Estébanez, Un Drama Nuevo; Gramatica Valdés, Solo; Ford, Spanish Anthology; Moratín, El Sí de las Niñas; Calderón, La Vida es Sueño; Lope de Vega, Si no viernan las mugeres; Alarcón, La Verdad Sospechosa; Cervantes, Don Quijote; Fitzmaurice-Kelly, History of Spanish Literature (preferably in the French version by Davray); Blanco García, La Literatura Española en el Siglo XIX.

Outside reading: Valera, El Comendador Mendoza; Cervantes, Nove-

las Ejemplares.

Columbia University, West Hall, 407. Sixty sessions. Mondays and Wednesdays 4.30-6 P. M. First session September 30th. Fee \$30. Requires eight students. (Six points.)

# Addendum

T. C. Education 41-42-Kindergarten Principles. Lectures, required readings, and written reports. Miss Fulmer

This course is intended to furnish an introduction to the educational principles embodied in Froebel's Mother Play, Pedagogics of the Kindergarten, and Education by Development, as foundations of the kindergarten system.

Prerequisite: Education A or 19-20.

Teachers College, 114. Section II. Thirty sessions. Thursdays 4 P. M. First session October 24th. Fee \$15. (Two points.)

# COURSES FOR MISSION TEACHERS

To facilitate the training of students who may subsequently, especially as teachers, enter the field of foreign missions, the following group of courses has been made up mainly from courses offered at the University and at Teachers College. The chief courses scheduled below constitute an organic group which may be completed in one year's time. The qualified student can in the meantime pursue his study of the language of the country to which his work is to take him. The courses are here scheduled in an order that will show the possibility of a well-rounded course of instruction within the limits of the stated time. Should the registration warrant it, a second year's course of instruction will be offered in 1909-10.

- T. C. Physical Education 87—Personal Hygiene. (See T. C. Announcement.)
- T. C. Physical Education 88—School Hygiene. (See T. C. Announcement.)
- E. Physical Education 89-90—Public and Social Hygiene. (See p. 62.)

The following courses in Physical Education are optional:,

- T. C. Physical Education 5-6—Descriptive Anatomy. (See T. C. Announcement.)
- T. C. Physical Education 187-188—Hygiene of Childhood and Adolescence. (See p. 63.)
- T. C. Hospital Economics I—Home Care of the Sick. (See p. 53.)
- T. C. Hospital Economics II—Infancy: Its Hygiene and Nurture. (See p. 53.)
- T. C. Domestic Science 1-2—Household Technique—Cooking and Laundering. (See p. 30.)
  - T. C. Domestic Art 1-2—Handwork—Sewing. (See p. 27.)
  - T. C. Manual Training 5a-6a-Woodworking.. (See p. 54.)
- T. C. Education A—General and Educational Psychology. (See p. 34.)

The following course is optional:

T. C. Education 33-34—Theory and Practice of Teaching in Elementary Schools. (See p. 38.)

Linguistic Course:—Chinese, Persian, Arabic, Turkish. (See the announcement of the division of Oriental Languages in the Bulletin of Information of Columbia University.)

#### III—EVENING TECHNICAL COURSES

These courses are open, without examination, to men and women who desire to obtain higher technical knowledge in their trades and professions.

The courses are given mainly in Teachers College, Columbia University, 120th Street, West, between Amsterdam Avenue and Broadway. (Subway station, Broadway Branch, 116th Street.)

They will begin in the last week in October and continue, with intermission for the Christmas vacation, for twenty to twenty-five weeks, in

accordance with the character of the course.

To enter any course offered, send your name, stating the course desired, to the Director of Extension Teaching, Teachers College, Columbia University, New York City. Officers of the University will be present in Room III, Teachers College, on Tuesday and Thursday evenings, October 20th and 22nd, from 7.45 to 9.45 P. M., to meet any intending students who desire personal consultation. Students may also consult the instructor and register on the opening night of the course.

Fees are payable in advance. They should be sent by registered letter, postal money order, or check made payable to Teachers College and addressed to the Bursar, Teachers College, New York City. Or students may pay in person, on the first night of the session of the class, at the

Bursar's Office, Teachers College.

Text-books, drawing instruments, and supplies must be provided by the student. These can be procured at reduced rates at the College Bookstore, Amsterdam Avenue, near 120th Street. Instruments for the drafting courses cost about \$4; the expenses in other courses will generally be less.

Students are urged to pursue systematic work extending over several

years. The following are suggested programmes of study:

I—First year—Mathematics I and Drafting; second year—Mathematics II and Strength of Materials; third year-Elements of Structural Design and Elements of Surveying.

II—The preceding course may be varied after the second year's work by taking-third year-Applied Physics and Elements of Electricity; fourth year-Steam Engines and Boilers and Elements of Electrical Machinery.

III—Or, after the first year's course in mathematics and drafting, second year-Mathematics II and Applied Physics; third year-Steam Engines and Boilers and either Elements of Electricity or Elements of Electrical Machinery.

IV—Or, after the first year's course in mathematics and drafting, second year-Mathematics II and Strength of Materials; third year-Elements of Machine Design and Steam Engines and Boilers.

# APPLIED MECHANICS

E. Applied Mechanics, Course I-Drafting.

Mr. THOMAS and assistant.

This course is designed to meet the needs of young men who wish to prepare themselves for positions as mechanical or structural draftsmen; for machinists, electricians, and others who need a knowledge of drafting in their business; and for young men serving as tracers in drafting-rooms.

The course is planned to give thorough instruction in lettering, dimensioning, projections, intersections, design of machine details and structural details, machine sketching and the reading of working designs, assembly drawing, proportions of standard parts, etc. Modern drafting-room conventions and the making of tracings and blue printing are also taught.

While this is a course for beginners, the student is immediately brought in touch with the practical side of this work, and the relation of the drafting-room and the shop. Modern drafting-room systems are also briefly considered, and throughout the work the student uses a system embodying the principles upon which all good systems are based.

Teachers College, 327; 114. Fifty sessions. Tuesdays and Thursdays
7.45-9.45 P. M. First session October 27th. Fee \$15.

E. Applied Mechanics, Course II-Elements of Machine Design. Mr. Thomas and assistant.

This course is for men who have a knowledge of elementary drafting such as is offered in Course I-Drafting, or has been gained from experience in the drafting-room. Men who are planning to take this course and have not a knowledge of the strength of materials should arrange to take E. Surveying and Structures, Course III—Strength of Materials. It is especially designed to enable draftsmen to qualify for positions of

responsibility.

This course begins with a study of the general principles involved in the design of cams, gears, linkages, and other simple motions. The design of some complete machine is then taken up to bring out: layout of motion required to accomplish a given work; clothing of the motion in iron to make it a machine; the design of the parts with a view to accessibility for adjustment or repair, minimum cost of production, strength and wear, appearance, etc. A study of drafting-room systems for marking and filing drawings is included in the course.

Teachers College, 243. Fifty sessions. Tuesdays and Thursdays 7.45-9.45 P. M. First session October 27th. Fee \$20. Requires twenty

students.

E. Applied Mechanics, Course III-Engines and Boilers.

This course is for men who are working with steam-engines, boilers, etc., as engineers, firemen, janitors, or for men who wish to take up such work. To enter this course the student should have a knowledge of

elementary mathematics.

The work will consist of lectures; the study and solution of numerous problems from practice; inspection of the engine and boiler plant in the college building for those unfamiliar with the general arrangement of machinery of this kind. The student will spend two hours each Tuesday and Thursday evening under the instructor. The first part of the period will be given to the explanation and the second part to the application. The course will cover the properties of steam, the generation of steam in the boiler, the utilization of steam in the engine, the loss of energy from the coal consumed to the power delivered by the engine, typical forms of engines and boilers, the indicator diagram, injectors, pumps, piping, power plant, layout, etc. This course will aid men employed with steam machinery who wish to qualify for a license.

Teachers College, 236. Fifty sessions. Tuesday and Thursday 7.45-9.45 P. M. First session October 7th. Fee \$20. Requires twenty students.

# APPLIED PHYSICS

E. Applied Physics, Course I—The Management of Building nts.

Professor Woodhull Plants.

This course deals with the practical applications of the principles of physical science especially as illustrated in the construction, equipment, and maintenance of large buildings.

It is intended for two classes of persons: (1) those who wish to make an elementary study of physics as a preparation for advanced study in electricity, steam, machine, structural, or other technical lines; (2) those who are or wish to become superintendents of buildings, janitors, firemen, engineers, or to take other positions connected with the care of

modern office buildings, apartment houses, etc.

Outline: Water supply and plumbing. Fuels. Heating and ventilating equipment. Filters. Meters for water, gas, and electricity. Steamengines. Steam piping. Pumps. Hydraulic elevators. Refrigerating machinery. Laundry machinery. Direct and alternating current. Electricity. tricity. Electrical quantities. Dynamos. Motors. Electric wiring. tric elevators. Electric bells and telephones. Gas and electric lighting. Repairing. The course will consist of lectures and practical demonstrations connected with the plants of Columbia University, Teachers College, and Whittier Hall.

Teachers College, 411. Forty sessions. Tuesdays and Thursdays 8-9.30 P. M. First session October 27th. Fee \$15. Requires twenty

students.

### ARCHITECTURE

E. Architecture, Course I-Architectural Drafting.

Mr. HARRIMAN

A course in architectural drawing to include elements of architecture, projections and shades and shadows as applied to the rendering of draw-

ings in India ink washes.

This course is intended to meet the requirements of two classes of young men: those who wish to fit themselves for entrance to a school of architecture, also those who are engaged during the day in offices and wish to fit themselves for advanced work.

Columbia University, Havemeyer, 609. Forty sessions. Tuesdays and Thursdays 7.45-9.45 P. M. Fee \$15. E. Architecture, Courses I

and II taken together in one year, fee \$30.

E. Architecture, Course II—Architectural Practice.

Mr. JALLADE

This course is intended for architectural draftsmen and men engaged

in building operations.

The work is planned to make the student familiar with general architectural practice, and will comprise the manufacture and use of building materials, making of working drawings, constructional details, stereotomy, specification writing, contracts, surveys, superintendence, relation of structural engineering and the various mechanical parts of a building, New York City Tenement House laws, office systems, and the checking of work.

Lectures illustrated with lantern slides, models and samples.

Columbia University, Havemeyer, 311. Twenty-four sessions. days and Fridays 7.45-9.45 P. M. First session October 26th. Fee \$20. E. Architecture, Courses I and II taken together in one year, fee \$30.

E. Architecture, Course III-Elements of Architectural Design. Mr. WARREN

This is a course in elementary architectural engineering, designed for

draftsmen and others, engaged in building operations.

The exercises will consist of lectures and recitations. Instructions will be given in the strength of materials and in designing beams, girders, columns, and simple framed structures, such as roof trusses. Instruction will also be given in the use of the tables of the strength of beams and other structural members published in the manufacturers' hand-books. A knowledge of algebra through quadratic equations, and plane geom-

etry is required.

Columbia University, Havemeyer, Room 607. Two sessions weekly, two hours each, for twenty weeks. Tuesdays and Thursdays 7.45-9.45 P. M. First session December 1st. Fee \$25. Requires twenty students.

E. Architecture, 3b-History of Ancient, Mediaeval, and Oriental Architecture. Professor HAMLIN

Columbia University, Havemeyer, 311. Thursdays 4.30 P. M. First session October 15th. Fee \$10.

See p. 23.

# CHEMISTRY

E. Chemistry, Course I—Elementary Chemistry and Industrial Applications. Lectures, demonstrations, discussions and individual Mr. WHITMAN laboratory practice.

This course aims to give the training in chemical manipulation and the knowledge of chemical compounds and processes which will fit one to undertake work in various technical and professional departments and advance to more responsible positions. The successful completion of the course satisfies the entrance requirement in chemistry at Columbia College, and the College of Physicians and Surgeons.

It is especially designed for: (1) artisans and industrial workers who have not had a systematic training in chemistry; (2) those who wish a practical knowledge of the fundamental principles of general chemistry as the foundation for more advanced study, or for its bearing upon

engineering.

Outline: The nature of chemical action. Common elements and compounds. Combustion. Gas for light, heat and power; coal gas, water gas, acetylene, naphtha and producer gas. Fire extinguishers. Gunpowder and other explosives. Chemical action at high temperatures in the electric furnace. Thermite welding. Solid and fluid extracts, tinctures, solutions and emulsions. Methods used in sanitary examination of air, water and foods. Antiseptics and disinfectants. The manufacture of glass, paints, soap, fertilizers, soda water, alcohol, iron, steel and ferro-alloys, and other important chemical compounds of everyday use. Laundry chemistry. The principles underlying bleaching, dyeing, electro-plating, photography, photo-engraving and etching.

Teachers College, 402. Fifty sessions. Tuesdays and Thursdays 7.45-9.45 P. M. First session October 27th. Fee \$20; laboratory fee \$2.

Requires twenty students.

E. Chemistry, Course II—Introduction to Quantitative Analysis.

This course includes laboratory practice and class-room instruction in both gravimetric and volumetric chemical analysis. The analyses which the student makes are simple but typical and are selected with a view to

giving a student a good preparation for more advanced quantitative work.

Outline: General principles. Theoretical considerations of chemical action. Treatment of precipitates. Simple gravimetric determinations:

Outline: General principles. Theoretical considerations of chemical action. Treatment of precipitates. Simple gravimetric determinations: (1) chlorine, (2) sulphur. Calculation of results. Analysis of brass. Preparation and use of standard solutions. Use of indicators. Simple volumetric determinations: (1) caustic soda, (2) potassium iodide. Oxidation and reduction in analysis. Determination of potassium chlorate. Determination of chromium in chrome iron ore. Determination of iron in limonite.

Teachers College, 409. Fifty sessions. Tuesdays and Thursdays 7.45-9.45 P. M. First session October 27th. Fee \$20; laboratory fee \$5.

#### ELECTRICITY

E. Electricity, Course I-Elements of Electricity. Mr. Greiff

This is a course in the elements of electricity and is intended for practical electricians, linemen, persons handling electrical machinery or engaged in its manufacture, and others interested. To enter this course a knowledge of elementary mathematics (see Mathematics I) and of elementary physics (see Applied Physics above) is required.

The first part of the session is devoted to the explanation of the principles and the latter part to the solution of problems from practice. The course will give instruction in the simple laws of the electrical circuit, electrical units and measurements, series and parallel circuits, electrical instruments, are and incandescent lamps, continuous current, dynamos and motors and their characteristics, alternating current machinery, etc.

and motors and their characteristics, alternating current machinery, etc.
Teachers College, 408. Fifty sessions. Tuesdays and Thursdays
7.45-9.45 P. M. First session October 27th. Fee \$20. Requires twenty

students.

# E. Electricity, Course II—Principles of Electrical Machinery. Mr. White

I-Principles of Dynamo-Electric Machines: 1. Definition of dynamo-electric machines. 2. Dynamo as compared to other sources of electricity. 3. Parts of dynamo-electric machines and their functions. 4. Law of generation of electro-motive force. 5. Armature windings, calculation of number of inductors necessary to develop required voltages. Various types of armature windings. 6. Armature core, material used, size, construction and mounting. 7. Eddy currents and hysteresis losses in armature core. 8. Commutators; their function and construction, difference between A.C. and D.C. armatures. 9. Brushes, various kinds, calculation of size. 10. Brush-holders; requirements for different types. 11. Balancing and finishing of armature and commutator. 12. Field magnet construction; forms, materials. 13. Calculation of ampere terms for given excitation. 14. Types of filed-winding. 15. Armature reaction; causes; effects; methods of reducing. 16. Sparking at brushes and commutator; causes; effect on commutator; elimination; care of commutator. 17. Generator connections and characteristic curves of various types of excitation. 18. Operation in parallel. 19. Determination of efficiency. Operation of dynamo-electric machine as a motor. 21. Fundamental equation of a motor. 22. Conditions which determine direction of rotation. 23. Types of motors; causes of speed; change and regulation. 24. Connections of motors and methods of control. 25. Efficiency of motors, determination. 26. Applications of motors.

II—ELECTRICAL DISTRIBUTION OF ENERGY: I. Power station switchboard; different types, hand control, remote control. Material employed for panels; apparatus mounted on them. 2. Size and carrying capacity of switches, circuit breakers, fuses and bus-bars. 3. Electrical measuring instruments; indicating, integrating, recording. 4. Proper location of switch-board in power plant. 5. Materials available for transmission lines. 6. Definition and use of the "circular mil." 7. Calculation of size and resistance of conductors. 8. Direct current systems of distribution—methods of regulation, etc. Series, parallel, series-parallel. Calculation of size of conductors in specific cases. 9. Three wire systems and modifications. 10. High voltage direct current systems. 11. Principles of alternating current. Effect of inductance and capacity. 12. Modification of Ohm's Law as applied to alternating current circuits. 13. Various types of wave-forms, effective values of voltage and current. 14. Alternating current distribution. 15. Principles of the Static transformer. 16. Rotary converters. 17. A.C. distributer, using rotary converters. 18. Principles of A.C. motors; induction, synchronous, etc. 19. Aerial transmission

lines. 20. Underground transmission lines.

Teachers College, 418. Fifty sessions. Tuesdays and Thursdays 7.45-9.45 P. M. First session October 27th. Fee \$20. Requires twenty students.

# FINE ARTS

E. Fine Arts 1-2-Object Drawing and Sketching. Mr. HUMANN Instruction in the principles of representation, light and shadow, appearance drawing, theory of perspective. Drawing from objects, still life, casts, animals, figures, and the models; landscape sketching. The mediums are brush and ink, pencil, charcoal and water-color.

The course aims to give students facility in technique and to afford a foundation for those who intend to become designers and illustrators,

or to do art work of any kind.

Teachers College, 435. Fifty sessions. Tuesdays and Thursdays 7.45-9.45 P. M. First session October 27th. Fee \$20; studio fee for materials \$1. Requires twenty students. (Three points.)

E. Fine Arts 21a-22a-Art Photography (II). Lectures and laboratory work. Mr. WHITE

This course will deal with the following subjects:—the application of art to photography defined, and instruction in the use of the camera. Field and laboratory work, making negatives, and showing the field of landscape, architecture, illustration and portraiture. Mounting, framing and lantern slide making.

Practice will be offered in the use of the camera in the field (Saturday

afternoons) and in the studio.

Teachers College, 200. Fifty sessions. Tuesdays and Thursdays 7.45-9.45 P. M. First session October 27th. Fee \$20. Requires twenty students. (Three points.)

An afternoon section (I) is also given on the same days.

#### MATHEMATICS

E. Mathematics, Course I—Parts A and B—Elementary Mathematics—Computation, Mensuration, and the Use of the Formulas of Engineering.

Mr. French and Mr. Sears

This course includes the practical geometry of mensuration and the practical parts of algebra. The work has three objects in view:

1. To give abundant practice in computation—

a. With tables including logarithms.

b. With the slide rule.

2. To introduce many practical applications to mechanics and business. 3. To introduce the trigonometry of the plane triangle relating this

to the work in computation.

The work of the first twenty-five lessons (Part A) will be repeated for students who wish to begin in February instead of October. Such

students could complete the course in the succeeding year.

Teachers College, 211. Fifty sessions. Section I, Mondays and Wednesdays; Section II, Tuesdays and Thursdays 7.45-9.45 P. M. First

sessions October 26th and 27th. Fee \$15.

E. Mathematics, Course II-Advanced Mathematics-Practical Course in Curve Tracing and the Calculus.

This course covers: 1. Reading of a working drawing. Elementary mechanical drawing. 2. Curve tracing, limited to the conics and to such other curves as are needed in mechanical work. 3. Elements of the calculus for the purpose of (a) mechanical problems in maxima and minima; (b) integration for the finding of areas and volumes. (Teachers should

consult Perry and Autenheimer freely.) To enter this course students

should have done Course I or its equivalent.

Signature of the course of 7.45-9.45 P. M. First session October 26th. Fee \$15.

#### SURVEYING AND STRUCTURES

E. Surveying and Structures, Course I-Plane and Topographic Surveying.

This course is intended to meet the needs of three classes of men: (1) those who wish to become civil engineers, to whom a thorough knowledge of surveying is essential; (2) those who intend to seek employment in some surveying corps and have not previously studied the subject or worked along its lines; and (3) those men who, though engaged in surveying work, lack a broad knowledge of the subject. A knowledge of algebra, plane geometry and plane trigonometry (see Course I—Elementary Mathematics) is required before taking the course. Students in this course are strongly advised to take also the course in E. Applied Mechanics, I-Drafting.

The course deals with the theory and principles of Plane Surveying: (I) the instruments employed, their adjustment and their use; (2) surveying methods, including mapping, profiling, and the determination of areas and volumes. Lectures, demonstrations of instruments, problem work and study of the text-book. Text-book: John C. Tracy, Plane

Surveying.

Teachers College, 325. Forty sessions. Section I. Tuesdays and Thursdays 7.45-9.45 P. M. First session October 27th. Fee \$20. Requires twenty students. Section II will be offered, if registration warrants, Room 114. Mondays and Wednesdays 7.45-9.45 P. M.

E. Surveying and Structures, Course II-Elements of Structural Design. Mr. KNOWLES and Mr. POND

This course is designed especially to meet the requirements of men who wish to qualify themselves for responsible positions in the employ of civil engineers, architects and others engaged in structural work. This requires some knowledge of drafting on the part of the student, and he must previously have taken a course in Strength of Materials or its

equivalent.

The course is conducted by means of lectures, recitations and draftingroom work. A thorough study is made of the methods of determining reactions, shears and bending moments on beams and frame structures. Special attention is given to the consideration of moving loads. Analytical and graphical methods of determining stresses are both given at length, and instruction is given in the selection of the members. Attention will be given to the best methods for preparing designs and of solving structural problems. A complete building or bridge may be designed. A textbook will be used and also a structural handbook.

Teachers College, 222, 201. Fifty sessions. Tuesdays and Thursdays 7.45-9.45 P. M. First session October 27th. Fee \$20. Requires twenty

students.

E. Surveying and Structures, Course III-Elements of Strength of Materials. Mr. MACGREGOR

This course is designed for draftsmen, machinists, mechanics, foremen, engineers and others needing a knowledge of the strength of the various materials used in engineering practice.

Some knowledge of elementary mechanics is necessary for entrance. The work includes a general consideration of the subjects of stress, strain, tension, compression, shear and torsion, and the application of these

principles in designing members of the various materials which are subjected to such stresses. The mechanics of beams, simple, cantilever, continuous, and restrained, the strength of riveted joints, girders and columns are investigated. An important feature is the application to the solution of practical problems together with the actual design of structural members.

Teachers College, 418. Twenty-five sessions. Lectures and problem Mondays 7.45-9.45 P. M. First session October 26th. Fee \$10.

E. Surveying and Structures, Course IV—Design of Reinforced Concrete Structures. Mr. BEYER

The work consists of lectures in which are thoroughly discussed the underlying theory of design, the best practice, and the properties of the composite structures of concrete-steel; also of the study and solution of

numerical problems in design.

Outline: Beam, assymmetrical and symmetrical reinforcement, both simple and continuous. Floor slabs. Columns, both plain and hooped. Column footings. Various types of retaining walls. Concrete-steel dams. Circular and rectangular tanks. Temperature and shrinkage stresses developed in concrete monoliths. Cain's elastic theory of concrete-steel arches. Design of culverts, water and sewer conduits, circular, rectangular, and arched. Concrete-steel pipes subjected to internal or external pressure or both. Foundations, including concrete piles. Design of forms for various types of concrete structures.

This course should be taken only by graduates of technical schools. Teachers College, 130. Fifty sessions. Tuesdays and Thursdays 7.45-9.45 P. M. First session October 27th. Fee \$20.

E. Surveying and Structures, Course V-Advanced Structural

Design.

The purpose of this course is to investigate the fundamental laws underlying the subject of structural mechanics, on the one hand, and to apply such laws in the actual design of engineering structures, on the

other.

The laws relating to the bending moment, shear, deflection, elasticity in homogeneous bodies, coefficients of elasticity, relation between stress and strain, common theory of torsion and flexure, will be examined, while the practical features consist in the complete treatment and design of such members and structures as simple and continuous beams, timber and steel columns, girders, shafts, roofs, bridges:-draw span, suspension, and cantilever-arched ribs, masonry arches, and retaining walls.

Lectures, conferences and drafting-room work will be employed to

develop the theory and to execute the design.

Students intending to take this course should be graduates of technical schools or have a good working knowledge of mathematics and applied mechanics. This course is particularly suited to the needs of men in offices of structural or civil engineers.

Teachers College, 327. Twenty-five sessions. Wednesdays 7.45-9.45 P. M. First session October 28th. Fee \$15. Requires twenty students.

# DOMESTIC ART AND SCIENCE

Teachers College also offers at night the following courses in Domestic Art and Domestic Science:

T. C.—Domestic Art 1a-2a—Hand Sewing. Mrs. Hype See p. 27.

T. C. Domestic Art 1c-2c-Drafting and Making of Garments. Miss Schenck and Miss BALDT

See p. 27.

T. C. Domestic Art III—Shirtwaist Making. Miss BALDT See p. 28.

T. C. Domestic Art 19-20—Millinery. Miss Smith See p. 29.

T. C. Domestic Science I—Foods, Cookery and Marketing.
Miss Barrows, Miss Skinner, Miss Vanderbilt
See p. 29.

T. C. Domestic Science V—Dietetics. Miss Jewell See p. 30.

# **ENGLISH**

The following courses in English are also given at night:

E. English A—Composition.

Mr. Galwey
See p. 40.

E. English 112-122—Public Speaking.

Mr. Dow

See p. 41.

#### FRENCH

The following course in French is given at night: E. French B1-B2—Grammar, Reading and Composition. Dr. GERIG See p. 64.

#### **GERMAN**

E. German I-Masterpieces of German Literature. See p. 51.

# IV—LECTURE COURSES FOR LOCAL CENTRES

These courses are given only in local centres, when arranged by the Director of Extension Teaching and the local centre. They are not credited

towards degrees or diplomas.

Local centres can secure, in general, any Extension course offered in this announcement by application to the Director and the payment of the fee determined for the course. The fee for a course varies in accordance with the character of the subject, the rank of the lecturer and the distance of the centre. As a rule, the course fee ranges from \$90 to \$150 (in a few cases \$300) for a course of six lectures. Expenses are additional. Persons contemplating the establishment of local centres are invited to communicate with the Director of Extension Teaching and secure specific information.

#### ARCHITECTURE

I—Cathedrals of the Middle Ages.

Six illustrated lectures:—I. The Significance of the Cathedral: Early Gothic—S. Denis, Notre Dame. 2. Later Gothic in France—Amiens, Beauvais. 3. The Norman Cathedrals in England—Durham. 4. English Gothic Architecture—Salisbury and Westminster Abbev. 5. German Gothic—Cologne. 6. Gothic Style in Italy—Siena, Florence, Milan.

II—The Architecture of Great Cities. Professor Hamlin Six illustrated lectures:—I. Rome. 2. Constantinople. 3. Venice. 4. Paris. 5. London. 6. New York. (Syllabus B, 20.)

III—The Appreciation of Architecture. Mr. STOUGHTON
Six illustrated lectures:—I. Construction. 2. Decoration. 3. Composition. 4. Relation to Life and Use. 5. Styles and Periods. 6. Present and Future Modes.

IV—The Architectural Masterpieces of the World. A course in Style.

Six or eight illustrated lectures:—I. Egyptian. 2. Greek. 3. Roman. 4. Romanesque. 5. Gothic. 6. Renaissance. 7. Modern European. 8.

V—Studies in French Architecture, I. Mr. STOUGHTON
Six illustrated lectures:—I. The Romanesque Churches of the South.
2. The Gothic Cathedrals. 3. The Châteaux of the Loire: (Renaissance).
4. The Palaces of the Grand Monarque. 5. The Great Buildings of the 19th Century. 6. The Constructive Examples of To-day.

VI—Studies in French Architecture, II. Mr. STOUGHTON Six illustrated lectures, each complete in itself; Typical French Buildings, illustrating the conditions and art of the several epochs:—I. The Mediæval Fortress: Pierrefonds. 2. The Gothic Cathedral: Amiens. 3. The Hotel de Ville: Paris. 4. The Royal Château: Versailles. 5. The Modern Public Building: The Paris Opera House. 6. The Monument of the Present day: The Palaces of Art.

VII—Moorish Architecture in Spain. Mr. Stoughton
One illustrated lecture.

VIII—The Planning and Beautifying of Cities. Mr. Stoughton One illustrated lecture.

#### **ASTRONOMY**

I-The Solar System.

Professor MITCHELL

Six illustrated lectures:—I. The Moon. 2. The Sun. 3. Eclipses of the Sun. (This lecture may be illustrated with moving pictures showing the progress of an eclipse.) 4. Is Mars Inhabited? 5. The Great Planets. How Worlds are Formed. 6. Meteors and Comets. (Syllabus B, I.)

Each lecture is illustrated by sixty lantern slides that show the beauty

and wonders of the planet world.

II-Modern Astronomy.

Professor MITCHELL

Six or more lectures copiously illustrated by the best modern photographs on topics of current astronomical interest will be arranged specially to suit the desires of local centres.

#### CELTIC

I—The Celtic Element in History and Literature.

Six lectures:—I. The Heroes of Irish Mythology. 2. The Mabinogion, and the Bards of Ancient Wales. 3. The Pre-historic Celt: his Family, his Religion, and his Conquest of Europe. 4. St. Patrick and Early Irish Missionaries. 5. The Old Irish Epics. 6. The Influence of Celtic Literature upon the Modern Literature of Europe.

## **CHEMISTRY**

I-Chemistry in Every-day Life.

Dr. Neish

Eight illustrated lectures:—I. Sugar: Its Manufacture from Cane and Beet to the Finished Product. 2. Illuminating Gas: Natural and Manufactured. 3. The Chemistry of Plant and Animal Growth. 4. Electrical Manufactures of Chemicals. 5. The Manufacture of Ceramics—Bricks, Stone-ware, Terra-cotta, Earthenware, China, Porcelain. 6. The Manufacture and Uses of Carbon. 7. The Manufacture of Soap. Raw materials; apparatus and different methods of manufacture; the finished products; soap and glycerine, industrial uses. 8. Petroleum and its Products. Geographical and geological occurrence, transportation, refining, products and uses of the same.

II-The History of Alcohol.

Professor Pellew

Four lectures:—I. The History of Alcohol. 2. Fermented Liquors. 3. Distilled Liquors. 4. The Physical, Chemical and Physiological Properties and Effects of Alcohol.

III-The Chemistry of Dyeing.

Professor Pellew

Three lectures:—I. Artificial Coal Tar Dyes. 2. The Dyeing of Cotton Fabrics. 3. The Dyeing of Animal Fibres.

# COMPARATIVE LITERATURE

I—The Italian Renaissance. A course illustrating the various phases of Renaissance life and thought throughout Europe by study of six representative Italians of the Renaissance period.

Professor Spingarn

Six lectures:—I. Renaissance Society: Castiglione. 2. Renaissance Politics: Machiavelli. 3. Renaissance Lyric: Petrarch. 4. Renaissance Fiction: Boccaccio. 5. Renaissance Epic: Ariosto. 6. Renaissance Art: Michelangelo.

II—The Tradition of Chivalry. A course illustrating the origin and development of the modern ideal of the gentleman as expressed in literature from the Middle Ages to the nineteenth century. Professor Spingarn

Six lectures:—I. The Mediæval Knight. 2. The Provençal Lover. 3. The Courtier of the Renaissance. 4. The Spanish Ideals of Honor, Courtesy, and Love. 5. The Gallant of the Seventeenth and Eighteenth Centuries. 6. The Modern Gentleman.

#### DOMESTIC SCIENCE

I-The Choice of Foods.

Miss Barrows

Four lectures, illustrated by special charts:—I. Markets in General, Meats. 2. Fish and Poultry. 3. Fruit, Vegetables, and Dairy Products. 4. Preserved and Canned Foods.

II-Processes of Cookery.

Miss Barrows

Four lectures with practical demonstrations:—I. Classification of Foods. 2. Animal Foods. 3. Vegetable Foods. 4. Doughs.

III-Some Common Foods.

Miss BARROWS

Six lectures with practical demonstrations:—I. Milk. 2. Eggs. 3. Fish. 4. Vegetables. 5. Meats. 6. Breads.

IV-Three Special Lectures.

Miss Barrows

1. All Sorts and Conditions of Kitchens. 2. Indian Corn. 3. Our Daily Bread. (All may be given either with or without illustrations.)

# EDUCATION

I-History of Education.

Professor MONROE

Six illustrated lectures:-I. Greek and Roman Education. 2. Mediæval Education. 3. The Origin and Development of Universities. 4. The Development of Secondary Education in Modern Times. 5. The Development of the Modern Elementary School. 6. History of Schools in the United States.

II-Fundamental Problems in Human Nature.

Professor THORNDIKE

Six lectures:—I. The Evolution of the Human Mind. 2. Mental Heredity. 3. The Influence of Environment. 4. Sex Differences in Mental Traits. 5. Mental Growth. 6. Mental Abnormalities. (Syllabus B, 8.)

III-Psychology and Teaching.

Professor THORNDIKE Six lectures: -1. Instinct. 2. Habit. 3. Attention. 4. The Association of Ideas. 5. Memory. 6. Reasoning.

IV-Psychology and Common Life.

Professor THORNDIKE

Six lectures:—I. The Psychology of Intellect. 2. The Psychology of Character. 3. The Psychology of Work. 4. The Psychology of Recreation. 5. The Psychology of the Moral Life. 6. The Psychology of Religion.

V-The Education of Women in Japan.

Miss Tsuru Arai

Four lectures:—I. The Home Education of Japanese Women. 2. The Present Condition of Japanese Higher Education. 3. The Social Life of Young Women in Japan. 4. Japanese Women Compared with American Women.

VI-Modern Japanese Life.

Miss Tsuru Arai

Three lectures:—I. Annual Festivals and their Traditional Meaning.
2. Domestic Life. 3. Women in Industrial Life.

VII-Administration of Schools and Teaching. Professor DUTTON

Six illustrated lectures: - I. The Contributions of the National Government to Education. 2. The State as the Sovereign Power in Education. 3. New Ideals in the Administration of City Schools. 4. Types of School Architecture and Equipment. 5. Essential Factors in School Supervision. 6. The School and the Community.

IX-Education in the South.

Professor CLAXTON

Course of six lectures:—I. Education in the South previous to 1870. 2. Reconstruction and beginnings of Modern Public School System (1800-1900). 3. Recent Educational Development. 4. "The Mountain Whites" and their Homes. 5. Education of the Negro. 6. The Realization of Educational Ideas.

X—Lectures on the South and Education. Professor CLAXTON Two lectures: -I. "The Mountain Whites" and their Homes. (Illustrated.) 2. The Educational Movement in the South.

#### ENGLISH

I—The English Language and its History. Professor Jackson Five lectures: - I. The Anglo-Saxon Period. 2. The Norman Conquest and its Effects. 3. Dialect Studies and Standard English. 4. From Chaucer to Shakspere. 5. From Shakspere to the Present.

II-Primary Work in Language.

Professor BAKER

Six lectures:-The history of the teaching of the vernacular in Germany and the United States. A survey of recent progress in principles and methods, and a presentation of present usages.

III-The Teaching of Literature in the Elementary Schools. Professor BAKER

Six lectures:-Principles of selection and presentation. The study of certain masterpieces commonly used in the grades. Lesson-plans and outlines.

IV-The Teaching of Composition and Grammar in Elementary Schools. Professor BAKER

Six lectures:-Relation of composition to other school work. The selection of subjects, preparation for the work, and the correction of themes. Past and present conceptions of English grammar. Effective methods of teaching the subject.

V-Victorian Poets.

Mr. HAMILTON

Six lectures:-I. Tennyson. 2. Browning. 3. Arnold. 4. Rossetti. 5. Morris. 6. Swinburne.

VI-Contemporary British Poets.

Mr. HAMILTON

Four lectures:—I. Rudyard Kipling. 2. Stephen Phillips. 3. William Ernest Henley and William Watson. 4. "Laurence Hope" and Ernest Dawson.

VII-The Poetry of Robert Browning. Professor PAGE

Six lectures:—I. The Simplicity of Browning's Poetry. 2. Browning's Life and Personality. 3. Some of Browning's Chief Poems. 4. Browning's Poems of Italy. 5. Some of Browning's More Difficult Poems. 6. The Spirit and Significance of Browning's Poetry.

VIII-Studies in the Poetry of Robert Browning. Professor Page

Twelve lectures:—I, 2. Dramatic Lyrics. 3, 4. Dramatic Romances. 5. Poems of Italy. 6. Poems of Music and Art. 7. Poems of Thought.

8. Poems of Analysis. 9, 10. The Ring and the Book. 11. Sordello. 12. One Word More, Prospice, Asolando, etc.

IX—Robert Browning.

Mr. MARTIN

Six lectures:—I. Browning, the Man, his Genius and Place in English Poetry. 2. Rabbi ben Ezra—A Typical Expression of Browning's Genius. 3. Pippa Passes—Browning as a Dramatist. 4. Abt Vogler—Browning as the Poet of Music. (Illustrated by the piano.) 5. Andrea del Sarto—Browning as the Poet of Painting. (Illustrated.) 6. The Ring and the Book—"Giuseppe Caponsacchi;" "Pompilia;" "The Pope." Manhood and Womanhood.

X-The Art Poems of Browning.

Mr MARTIN

Six illustrated lectures:—I. Browning, the Poet of Painting. 2. Old Pictures in Florence—in Vindication of Neglected Old Masters. 3. Fra Lippo Lippi—A Typical Painter-Monk of the Florentine Renaissance. 4. Pictor Ignotus—the Antithesis of Fra Lippo Lippi. 5. Andrea del Sarto—Personality and Art Ideals. 6. Francis Furini—the Function of the Nude in Art.

XI-The History of American Poetry. Professor PAGE

Twelve lectures:—I. Early Poets and Bryant. 2. Longfellow. 3. Emerson. 4. Poe. 5. Whittier. 6. Holmes. 7. Lowell. 8. Whitman. 9. Taylor, Timrod, Sill, Lanier. 10. Bert Harte, Bunner, Field, Riley. 11. Contemporary Poets of the Older Generation. 12. American Poetry of To-day. (A course of six lectures may, if desired, be selected from the foregoing.) (Syllabus B, 19.)

XII—Representative American Writers. Mr. CLYDE FURST

Six or more lectures, selected from the following:—I. Franklin.
2. Irving. 3. Cooper. 4. Bryant. 5. Poe. 6. Emerson. 7. Hawthorne.
8. Thoreau. 9. Whittier. 10. Longfellow. 11. Holmes. 12. Lowell.
13. Whitman. 14. Howells, 15. James. Some of the lectures may be illustrated, if desired. (Syllabus B, 6.)

XIII-American Writers.

Mr. HAMILTON

Six lectures:—I. Edgar Allan Poe: Poems and Short Stories. 2. Nathaniel Hawthorne: Short Stories and Novels. 3. Ralph Waldo Emerson: Essays. 4. Henry David Thoreau: Walden. 5. Francis Parkman: Histories. 6. Walt Whitman: Poems.

XIV-Studies in Modern Poetry.

Miss RITTENHAUS

Six lectures:—I. The Celtic Renaissance. 2. Victorian Successors—Stephen Phillips, A. E. Housman, Francis Thompson. 3. Richard Hovey—His Ultimate Place in American Poetry. 4. The Revival of Poetic Drama. 5. The Modern Note in Nature Poetry. 6. Three American Lyrists.

XV-Great American Orators.

Mr. RINGWALT

Six lectures:—I. Patrick Henry. 2. Henry Clay. 3. Daniel Webster. 4. Edward Everett. 5. Wendell Phillips. 6. Henry Ward Beecher.

XVI-Eighteenth Century Writers. Mr. GALWEY

I. Alexander Pope: the Augustan Age (Introductory lecture). 2. Addison and Swift; the Development of Prose, I. 3. Goldsmith, Johnson, and Burke; the Development of Prose, II. 4. Defoe, Fielding, and Sterne; the Birth of the Modern Novel. 5. Thomson, Collins, and Gray; the Early Romantic Movement. 6. Cowper and Burns; the Late Romantic Movement. Illustrations if desired.

XVII—Shakspere's Tragedies—With Interpretative Readings.

Mr. TASSIN

Six lectures:—I. Romeo and Juliet. 2. Julius Caesar. 3. Hamlet. 4. Othelio. 5. Macbeth. 6. Lear.

XVIII-Shakspere's Comedies.

Mr. TASSIN

Six lectures:—I. Midsummer-Night's Dream. 2. Merchant of Venice, 3. Much Ado About Nothing. 4. As You Like it. 5. Twelfth Night. 6. Measure for Measure.

XIX-The English Drama.

Professor Jackson

Twelve lectures:—I. Introduction: Great Dramatic Literatures. 2. Rise of the English Drama. 3. Morality Plays and Interludes. 4. Earliest English Comedy. 5. Earliest English Tragedy. 6. Predecessors of Shakspere. 7. The Players and the Stage. 8. Shakspere. 9. Shaksperean Drama [or Hamlet]. 10. Ben Jonson and Shakspere's Contemporaries. 11. The English Masque Plays. 12. Webster and the Successors of Shakspere. (A shorter course may be selected from the foregoing.)

XX-Representative English Writers. Professor JACKSON

Twelve lectures:—I. Introduction to English Literature: Beowulf.

2. The Anglo-Saxon Poet Cynewulf.

3. Chaucer and the Canterbury Tales.

4. Marlowe, the Predecessor of Shakspere.

5. Shakspere and his Times.

6. Shaksperean Comedy and Tragedy.

7. Milton and the Paradise Lost. 8. Pope and The Essay on Man. 9. Edmund Burke and the French Revolution. 10. Keats and his Works. 11. Shelley, the Man and the Poet. 12. Old English Romances. (A shorter course may be selected from the foregoing.)

XXI-Shakspere's Dramatic Art.

Mr. TYNAN

Six lectures:-I. Twelfth Night. 2. Merchant of Venice. 3. Richard III. 4. Julius Caesar. 5. Hamlet. 6. Macbeth.

XXII-The Theory of the Theatre.

Mr. HAMILTON

Six lectures:—I. What is a Play? 2. The Theatre and the Dramatist.
3. The Actor and the Dramatist. 4. The Audience and the Dramatist.
5. Economy of Attention in the Acted Drama. 6. The Principle of Emphasis in the Acted Drama.

# FINE ARTS

I-Art Appreciation and History of Art. Six lectures.

Professor Dow

II-Principles of Design.

Professor Dow

Two lectures with illustrations.

III—Japanese Art and the Arts of India.

Professor Dow

Four lectures with illustrations on Japanese Art; one lecture with illustrations on the Arts of India, and one lecture with illustrations on Lost Cities of Cevlon.

IV-Egyptian Art.

Professor Dow

Three lectures with illustrations.

V-Modern Painting.

Professor Dow

Two lectures with illustrations.

VI-The Parthenon and Quarries of Pentelicus. Professor Dow One lecture with illustrations.

#### **GEOGRAPHY**

I-Climate and Mankind.

Professor Donge

Six illustrated lectures: -I. Climate and Mankind: Introduction: The general relations of people to climate as seen in their occupations, manners and customs, and state of civilization. 2. Life in Deserts. 3. Life in Temperate Forest and Grass Lands as determined by the conditions of vegetation and climate. 4. Life in the Tropical Forests, as compared with that in other climatic regions. 5. Mountains and People: The influence of mountains upon peoples as seen in their customs, trade relations, and in the effect upon their imagination. 6. Plains People. Their life, customs, economic condition, state of civilization, etc., as determined by their environment. (Syllabus B, 4.)

II-Mountain Climbs and Explorations. Professor PARKER

Four illustrated lectures:-I. Climbs and Explorations in the Canadian Alps. Winter Excursions in the White Mountains. 3. Alaska and the Exploration of Mt. McKinley. 4. Mexico and the Grand Cañon.

III-Scenes in Newfoundland and Labrador. Professor JORDAN Two illustrated lectures:-I Three Months with Newfoundland Fishermen. 2. Life in Newfoundland and Labrador.

The second lecture may, if desired, be given in two separate lectures:—

(a) A Summer in Newfoundland. (b) A Summer in Labrador.

IV-Our Country's Resources.

Ten lectures: -I. Industrial Development in the United States. 2. The Wheat Country of the Northwest. 3. The Forest Lands of New England and New York. 4. The Manufacture of Wood Pulp and Paper. 5. The Petroleum Fields of Pennsylvania and the West. 6. The Bituminous Coal Regions of the United States. 7. The Anthracite Regions of Pennsylvania. 8. The Iron District of the Great Lakes. 9. The Manufacture of Iron and Steel. 10. The Lake Superior Copper Country. (Syllabus B, 21.)

# GERMAN LITERATURE AND CIVILIZATION

I-Representative German Writers. Professor Tombo

Five lectures:—I. Lessing. 2. Schiller (illustrated). 3. Goethe, I (illustrated). 4. Goethe, II: Faust. 5. Heine. 6. Hauptmann's Sunken Bell. (Syllabus B, 10.)

This course can be extended by including The Mediaeval Popular

Epics and the Mediaeval Court Epics.

II-German Masterpieces.

Mr. HEUSER

Seven lectures:—I. Nathan the Wise. 2. The Sorrows of Werther. 3. Wilhelm Meister. 4. Faust. 5. Wallenstein. 6. Wilhelm Tell. 7. The Sunken Bell.

III-Representative Germanic Dramas.

Dr. BRAUN Six lectures:-I. Lessing's Minna von Barnhelm. 2. Schiller's Mary Stuart. 3. Goethe's Faust. 4. Sudermann's Magda. 5. Hauptmann's The Sunken Bell. 6. Ibsen's Ghosts.

IV-German Literature.

Professor Tombo

Four lectures:—I. General Survey of the Development of German Literature (with emphasis on the two classical periods). 2. The Nibelungenlied (as representative of the first classical period). 3. Goethe's Faust (as representative of the second classical period). 4. Hauptmann's Sunken Bell (as representative of contemporary German literature).

V-Famous Sagas.

Professor REMY

Six lectures:—I. The Siegfried-Saga. 2. The Nibelungen. 3. The Legend of Tannhäuser. 4. The Legend of Parsifal. 5. The Legend of Lohengrin. 6. The Legend of Tristan und Isolde.

VI-Representative Germans.

Professor Tombo

A course of five lectures on makers of political and intellectual Germany:—I. Frederick the Great. 2. Goethe (illustrated). 3. Wagner. 4. Bismarck. 5. The Emperor William II.

VII-History of German Civilization.

Dr. RICHARD

Six, twelve, or eighteen lectures.

VIII-Glimpses of Germany.

Mr. HEUSER

Five illustrated lectures:—I. German University Life. 2. German University Towns. 3. Heine and his Pictures of Travel. 4. The Rhine and its Legends. 5. The Switzerland of Wilhelm Tell.

#### HISTORY

I-The French Revolution.

Professor SHOTWELL

Six lectures:—I. Voltaire and the Sceptics. 2. Rousseau and the Idealists. 3. Mirabeau and the Great Revolution. 4. Danton and the Mobs of Paris. 5. Robespierre and the Reign of Terror. 6. Napoleon and the Formation of Modern France. (Syllabus B, 2.)

II-The United States.

Mr. HAYES

Seven lectures:—I. Founding of the United States. 2. States' Rights and Slavery. 3. The Reconstruction of the Nation. 4. The Industrial Revolution in the United States. 5. Continental Expansion of the United States. 6. The Spanish War and Colonial Problems. 7. The United States as a World Power.

III—The Republics of South America and their Contribution to Culture. Professor Shepherd

Eight lectures:—I. Geography and Natural Resources. 2. The People. 3. Government. 4. Commerce and Industry. 5. Education and Public Charity. 6. Science. 7. Literature. 8. Fine Arts.

IV-Lectures on the History of Russia. Mr. Johnston

Six lectures:—I. Greek Colonies, Colchis, Tauris, Olbia, Scythia, Slavonians, Slav Religion and Race. 2. Russ Invaders in 859 A. D., Rurik, Christianity, Tartars, Moscow, Ioann the Terrible. 3. Polish Invasion, Call of Romanoffs, Michael, Alexei, Peter the Great, Reform. 4. Russian Empresses, Catherine the Great, Organization, Turkish War, Poland Divided. 5. Alexander I., Napoleon and 1812, Moscow Burned, Nicholas, Crimean War, 1854, Peace of Paris. 6. Emancipation of Serfs, Alexander II.'s Reforms, Juries, Zemstvos, War of 1877, Japanese War, Douma.

V-Lectures on the History of Ireland. Mr. Johnston

Six illustrated lectures:—I. Ireland, Traditional History, Firbolgs, Fomorians, De Dananns, Milesians, Brehons. 2. Classical Period. Cuchulaind, Deirdre, Find, Oisin, Cormac, Nial of Nine Hostages. 3. St. Patrick, Sts. Columba, Bridget, Columbanus, Gallus; Danish Raids, Brian Boru. 4. Anglo-Norman Invasion, 1169. De Courcy, King John, Geraldines, Wars of O'Neill. 5. Rebellion of 1641. Cromwell, Jacobite War, Sieges of Derry and Limerick, Treaty. 6. Penal Laws, Rebellion of 1798, O'Connell, Emancipation, Famine of 1847, Land Laws.

VI-Irish History-Five Types of Irish Characters.

Mr. Johnston

Five lectures:—I. Cuchulaind, the Hero. 2. Columba, the Mystic. 3. Brian Boru, the King. 4. Owen Roe O'Neill, the Warrior. 5. O'Connell, the Lawmaker.

VII—The Middle Ages. Professor Shotwell

Six lectures:—I. The Roman Empire and its Decline. 2. The Mediaeval Church. 3. Mediaeval Lore. 4. Feudalism. 5. The Rise of Cities. 6. The Italian Renaissance.

#### VIII-Italian Cities.

Mr. MARTIN

1. Venice in the Time of Titian. 2. Florence in the Fourteenth Century. 3. Florence in the "Golden Age." 4. The Four Romes—Ancient, Mediaeval, Renaissance, Modern. 5. Pompeii—Past and Present. 6. Siena and "Il Palio"—(Mid-August Festival).

IX-The Italian Renaissance and its Interpretation in Art.

Mr. MARTIN

Eight lectures:—I. The Function of Art as Interpreter of Historical Periods. 2. Historical Preparation for a Renaissance in Italy—The Middle Ages—Its Reflection in Art, II00-1250. 3. Meaning of the Term Renaissance—Origins of the Renaissance—Periods of Development. Florence the Centre of the Movement. 4. St. Francis of Assisi and the Early Renaissance—Giotto Interpreter of its Spirit (1300). 5. The Conflict of Greek-Christian Ideals (1400). Fra Lippo; Fra Angelico—Exponents of the Two Ideals, Respectively. 6. Triumphant Paganism and the Reaction (1500)—Savonarola's Work. Botticelli's Interpretation of the Epoch. 7. Culmination of the Renaissance (1550). Michelangelo the Artist-Prophet of the Decline. 8. Leonardo da Vinci, The Supreme Embodiment of the Many-Sided Renaissance, the Master-Mind of the Era.

X-History of Religions.

Mr. Johnston

Six lectures:—I. Egypt. 2. Chaldæa. 3. India. 4. China. 5. Syria, Greece, and Italy. 6. America.

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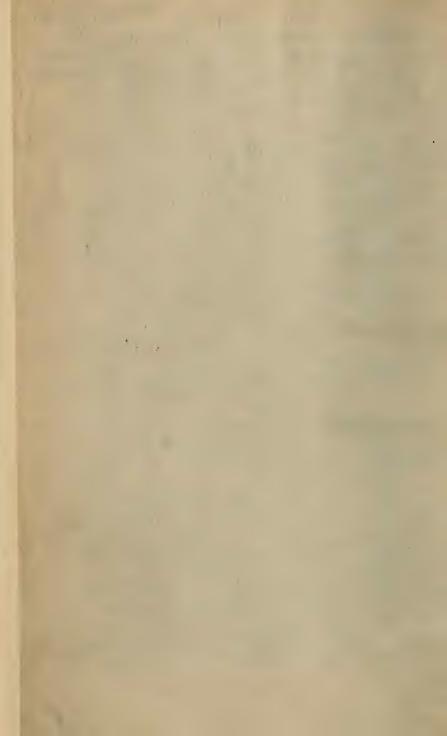
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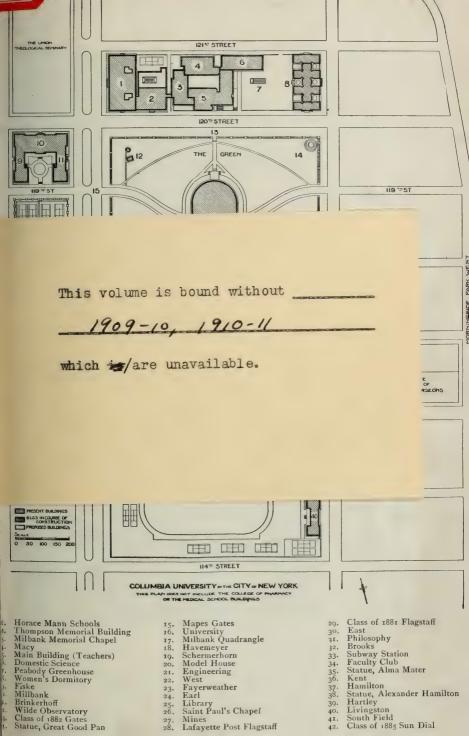
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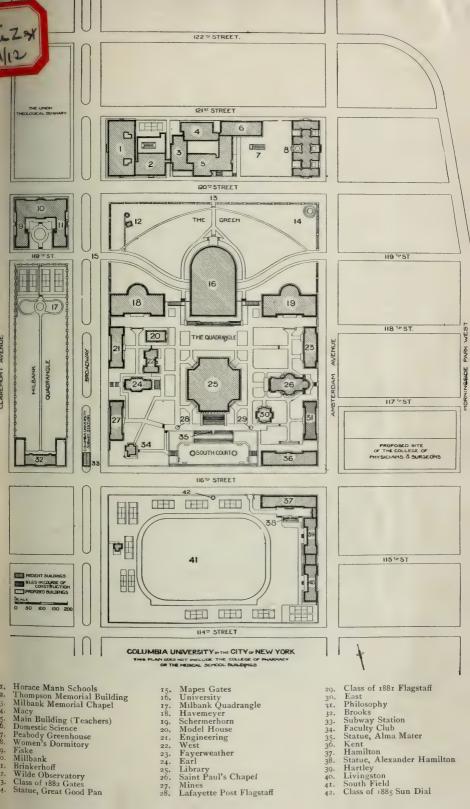
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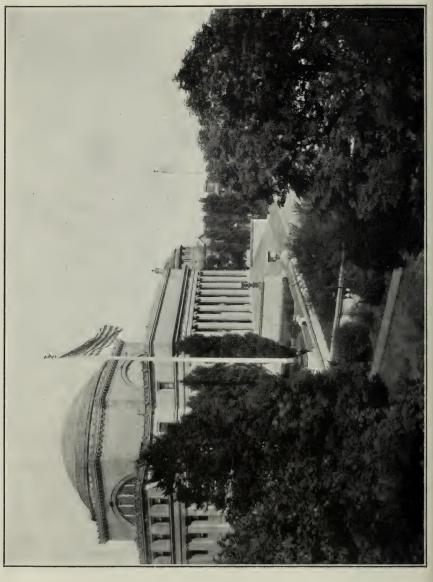
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#### OFFICERS OF EXTENSION TEACHING

1011-12

NICHOLAS MURRAY BUTLER, President of the University

#### Administrative Board

James Chidester Egbert, Ph.D.

Professor of Latin

Director of the Summer Session and Extension Teaching

FREDERICK J. E. WOODBRIDGE, LL.D. Johnsonian Professor of Philosophy

WILLIAM ADDISON HERVEY, A.M.

Associate Professor of the Germanic Languages and Literatures

Registrar of the University

Frederick Paul Keppel, A.B. Dean of Columbia College

#### OFFICERS OF INSTRUCTION

Corporation Finance

B. M. ANDERSON, IR.

	, , , , , , , , , , , , , , , , , , , ,						
	A.B., University of Missouri, 1906; professor of political economy, Missouri						
	Valley College, Marshall, Mo., 1906-7; head department of history and politica						
	economy, State Normal School, Springfield, Mo., 1907-11; A.M., Illinois, 1909-10; instructor in economics, Columbia, 1011-						
T							
E)	JGENE A. AGGER						
	A.B., Cincinnati, 1901; A.M., 1902; Ph.D., Columbia, 1906; lecturer in eco-						
	nomics, Columbia, 1906-10; instructor, 1910-11; assistant professor, 1911-						
MATTHEW GRUENBERG BACH German							
	A.B., Trinity (Conn.), 1910; A.M., Columbia, 1911.						
RICHARD FRANZ BACH Architecture							
	A.B., Columbia, 1908; lecturer in architecture, Columbia, 1910-						
JE	SSE E. BEANS Architecture						
	Assistant director, Minneapolis School of Fine Arts, 1905-07; assistant, Colum-						
	hia 1010-						

HAL TRUEMAN BEANS
B.S., Nebraska, 1899; A.M., 1900; Ph.D., Columbia, 1904; instructor in organic chemistry, Idaho, 1900-02; instructor in analytical chemistry, 1903-1911; as sistant professor, 1911-
FREDERICK REGINALD BEYGRAU . Stenography and Typewriting
South Penge Park College, London, 1881; Commercial Academy, Chemnitz 1889; official court stenographer, Canadian Government, 1907; instructor of short hand and typewriting, East Side Y. M. C. A., West Side Y. M. C. A., Christian Association, Columbia, 1908-; lecturer in commercial education, Columbia, 1910-principal, Millburn High School (N. J.), 1910-
Minnie Louise Bollert
A.B., Toronto, 1900; A.M., Toronto, 1902; A.M., Columbia, 1906; instructo in English, Alma College (Can.), 1901-04; teacher, Horace Mann School, 1908 assistant, Columbia, 1910; instructor, 1911-
WILHELM ALFRED BRAUN
A.B., Toronto, 1895; Ph.D., Columbia, 1903; professor of French and German Alma College, Ontario, 1897–98; assistant in German, Columbia, 1900–01; tutor 1901–06; instructor, 1906–10; assistant professor, 1910–11; associate professor, 1911–
GEORGE M. Brett
A.B., Bowdoin, 1897.
HAROLD CHAPMAN BROWN
A.B., Williams, 1901; A.M., Harvard, 1903; Ph.D., 1905; assistant in philosophy Harvard, 1904–06; assistant in philosophy, Columbia, 1906–07; instructor, 1907
Francis M. Burdick
A.B., Hamilton, 1869; LL.B., Hamilton College Law School, 1872; LL.D., 1895; professor, Hamilton College, 1882-87; professor of law, Cornell, 1887-91 professor of law, Columbia, 1891; Dwight professor of law, Columbia, 1892-
CHARLEE HOWARD BURNSIDE Architecture
B.S. (architecture), Columbia, 1898; A.M., 1899; instructor in mechanics Wisconsin, 1900-03; assistant professor of mechanics, Wisconsin, 1903-09; as sociate in physics, Columbia, 1909-10; assistant professor of mechanics, 1910-
GRACE LOUISE COOK
A.B., Wellesley, 1898; A.M., 1905; instructor in methods in English, New Yorl Training School for Teachers, 1906.
WILLIAM FORBES COOLEY
B.S., New York, 1878; M.S., 1892; B.D., Union Theological Seminary, 1907 Ph.D., Columbia, 1909; assistant in philosophy, Columbia, 1907-08; instructor 1908-
RICHARD DUDLEY CURRIER Assistant to Director, Newark, N. J.
A.B., Yale, 1900; LL.B., New York Law School, 1902; President Board o Trustees and Professor of Law, New Jersey Law School, 1908-

A.B., Syracuse, 1880; Ph.D., 1893; A.M., Columbia, 1892; tutor, Columbia, 1897-1906; instructor, 1906-08; adjunct professor, 1908-10; associate professor, 1910-

CARLTON CLARENCE CURTIS

. Botany

MILTON JUDSON DAVIES Assistant to Director, Brooklyn
A.B., Chicago, 1903; Educational Director, Central Branch, Brooklyn Young Men's Christian Asociation, 1905-
FAYETTE BROWN DOW
A.B., Amherst, 1904; LL.B., Columbia, 1909.
DANIEL B. DUNCAN
M. Acct., Hurd's National Business College, 1888; Ph.B., Upper Iowa University, 1890; head of department of English, Columbia Grammar School, 1900—
W. O. FARNSWORTH French and Spanish
A.B., Harvard, 1893; A.M., 1894; instructor in modern languages, Pennsylvania State, 1894-95; instructor in French, University of Iowa, 1898-1900; instructor in French, Yale, 1900-1906; professor of modern languages, Franklin and Marshall, 1909-10.
HERMON WALDO FARWELL
A.B., Dartmouth, 1902; A.M., 1906; instructor in physics, Dartmouth, 1904–06; assistant, Columbia, 1906–09; instructor, 1909–
Franklin Charles Fette
Ph.B., Oberlin, 1899; B.P.E., International Y. M. C. A. Training School, 1910; instructor, Columbia, 1910–
JAMES KIP FINCH Engineering
C.E., Columbia, 1906; A.M., 1911; instructor in civil engineering, Lafayette College, 1907; instructor in civil engineering, Columbia, 1910-
CAMILLE FONTAINE French
B. ès L., University of Paris, 1875; Bachelier en Droit, 1877; Licencié en Droit, 1878; instructor in Romance Languages, Columbia, 1909-10; assistant professor, 1910-
GEORGE BURDETT FORD
A.B., Harvard, 1899; B.S., Mass. Inst. of Technology, 1900; M.S., 1901; architecte diplomé par le gouvernement français, 1907.
R. K. Forsyth Business Organization
A.B., Indiana, 1908; A.M., Leland Stanford, Jr., 1909.
EDWARD JOSEPH FORTIER French
A.B., Tulane, 1904; professor of French, Notre Dame of Maryland, 1905; instructor, Yale, 1906; associate, Illinois, 1907–10; instructor, Columbia, 1910–
CHARLES ROBERT GASTON
Ph.B., Cornell, 1896; Ph.D., 1904; assistant in English, Cornell, 1896–1900; head of the English Department, Richmond High School, New York City, 1900–
Amadeus William Grabau
S.B., Massachusetts Institute of Technology, 1896; S.M., Harvard, 1898; S.D., 1900; assistant in geology, Massachusetts Institute of Technology, 1896-97; instructor in palæontology, 1893-97; instructor in geology Rensselaer Polytechnick Institute, 1899; professor of geology in same and lecturer in geology, Tufts, 1900; lecturer in palæontology, Columbia, 1901-02; adjunct professor, 1902-05; professor, 1905-

CHARLES CLAYTON GROVE
A.B., Pennsylvania, 1900, A.M., 1903; Ph.D., Johns Hopkins, 1906; instructor Baltimore Polytechnic Institute, 1905-06; assistant professor in mathematics, Hamilton, 1906-07; acting professor of mathematics and astronomy, Roanoke, 1907-09; instructor in mathematics, Columbia, 1909-10; assistant professor, 1910-
WILL TALIAFERRO HALE English A.B., A.M., Vanderbilt, 1902; B.D., Yale, 1905.
Walter Henry Hall
Student, Royal Academy of Music, London, 1878–82; organ pupil of Dr. Charles Steggall; theory with H. C. Banister; organist and choirmaster, St. Luke's Church, Germantown, Philadelphia, 1885–90; St. Peter's, Albany, 1890–92; Heavenly Rest, New York, 1893–97; St. James's Church, New York, 1897–; conductor of Brooklyn Oratorio Society, 1893–; conductor of choral music, Columbia, 1910–
WALTER PHELPS HALL
A.B., Yale, 1906; A.M., Columbia, 1907; lecturer, 1908-09; instructor, Amherst, 1909-
CLAYTON MEEKER HAMILTON
A.B., Brooklyn Polytechnic Institute, 1900; A.M., Columbia, 1901.
Charles Alonzo Harriman Architecture
Student, Massachusetts Institute of Technology, 1880–91; instructor, Columbia, 1891–1909; associate, 1909; assistant professor, 1911–
Thomas H. Harrington Drawing
C.E., Columbia, 1889; assistant, tutor and instructor in drawing, 1894-
CARLTON HUNTLEY HAYES
A.B., Columbia, 1904; A.M., 1905; Ph.D., 1909; lecturer, 1907-10; assistant professor, 1910-
WILLIAM ADDISON HERVEY German
A.B., Columbia, 1893; A.M., 1894; tutor in German, Columbia, 1896–1900; instructor, 1900–04; adjunct professor, 1904–10; associate professor, 1910–; registrar, 1908–
Frederick William Justus Heuser German
A.B., Columbia, 1901; A.M., 1902; assistant, Columbia, 1902-03; lecturer, 1903-04; instructor, 1905-
GILBERT HINTERMYER Architecture
Student at Pennsylvania Academy of Fine Arts; winner of Cresson Travelling Scholarship; with Messrs. Carrere and Hastings.
Percy Hodge Architecture
Ph.D., Cornell 1908; instructor in physics and mechanics Cornell, 1905-09; assistant professor of mechanics, Columbia, 1910-

RICHARD MORSE HODGE Biblical Literature			
A.B., Princeton, 1886; A.M., 1888; D.D., University of Nashville, 1901; dean of Missionary Training School, Fredericksburg, 1895–98; president of Bible Institute, Nashville, 1898–1901.			
HARRY L. HOLLINGWORTH			
OUIS IMBERT			
1908-09; Harrison fellow in Romance languages, Pennsylvania, 1909-10.			
OHN WILLIAM INGLE, JR Architecture Assistant in drafting-room, School of Architecture, Columbia, 1909–10.			
EDWARD T. KENNEDY			
C. BERNARD KOOPMAN			
OTTO Kress			
B.S., Columbia, 1906; A.M., 1907; Ph.D., 1909; assistant in quantitative chemistry, 1906-07; instructor in chemistry, 1907-			
Pelix Lamond Organ			
Organ pupil of William Henry Monk, King's College, London, editor of Hymns Ancient and Modern; piano pupil of Ernst Pauer, London, 1880-85; professor of organ, Woman's College of Baltimore, 1889-90; lecturer, professor of organ and piano, Michigan State Normal, 1890-97; organist and choirmaster, Trinity Chapel, New York, 1897-			
ARTHUR A. LIVINGSTON			
A.B., Amherst, 1905; instructor, Smith College, 1908-09; tutor, Columbia, 1909-10; assistant professor, Cornell, 1910-11; assistant professor, Columbia, 1911-			
LOUIS AUGUSTE LOISEAUX French			
Certificat d'études primaires supérieures, Académie de Dijon, 1887; brevet d'instituteur, 1887; B. ès S., University of Dijon, 1894; tutor, Columbia, 1892-1900; instructor, 1900-04; adjunct professor, 1904-10; assistant professor, 1910-			
VILLIAM MILWITZKY Romance Languages			
Student of Romance Philology, University of Paris, 1895-99; Élève Titulaire de l'École des Hautes Études (Section des sciences historiques et philologiques), 1896-99; private tutor in family of Gaston Paris.			
THEODORE C. MITCHILL English			
A.B., Columbia, 1886; A.M., 1901; principal, Jamaica High School, New York, 1910-			
ROBERT H. MONTGOMERY			
Member Pennsylvania Institute of Certified Public Accountants; fellow American Association of Public Accountants; editor, American Edition, Dicksee's Auditing, American Business Manual; instructor in auditing, Pennsylvania, 1904-07; New York, 1906-08; of the firm of Lybrand, Ross Bros, & Montgomery, Certified Public Accountants.			

WILLIAM CABLER MOORE
B.S., University of Nashville, Peabody College, 1903; assistant in chemistry, 1903-06; Ph.D., Chicago, 1910; tutor in analytical chemistry, Columbia, 1909-10; instructor, 1910-
HENRI FRANÇOIS MULLER French
B. ès L., University of Paris, 1897; tutor in Romance languages and literatures Columbia, 1903–09; instructor, 1909–
ARTHUR C. NEISH
A.B., Queen's, 1898; A.M., Columbia, 1900; Ph.D., 1904; assistant in qualitative analysis, 1900–02; tutor in general chemistry, 1903–10; instructor, 1910–
JOHN M. NELSON
B.S., Nebraska, 1901; Ph.D., Columbia, 1907; instructor in chemistry, Rose Polytechnic; instructor in chemistry, Troy Polytechnic; tutor in organic chemistry Columbia, 1908–10; instructor, 1910–
JOHN W. NICHOLS
Tenor, pupil of Dr. Carl Dufft, New York, 1902-05; Edward Iles, London 1905-06; Jean de Reszke, Paris, 1906-07; tenor soloist, American Church in Paris 1906-08; Flatbush Reformed Church, 1909-; St. Paul's Chapel, Columbia, 1909-oratorio and concert singer, 1905-
Frederick Stanley Nowlan
A.B., Acadia University, Nova Scotia, 1908; A.M., Harvard, 1909; adjunct professor of mathematics, Georgia School of Technology, Atlanta, 1909–10.
CLAUDE A. PIFER
A.B., Wabash College, 1907; A.M., 1908.
WALTER BOUGHTON PITKIN Philosophy and English
A.B., Michigan, 1900; B.D., Hartford Theological Seminary, 1903.
ALLEN WILSON PORTERFIELD
A.B., West Virginia, 1900; A.M., 1901; Ph.D., Columbia, 1911; instructor, 1903- 05; tutor in German, Columbia, 1907-10; instructor, 1910-
HARRY WILFRED REDDICK Mathematics
A.B., Indiana, 1904; A.M., Illinois, 1906; Ph.D., Columbia, 1910; assistant in mathematics, Columbia, 1907–09; tutor, 1909–10; instructor, 1910–
FRANK HUMPHREY RISTINE
A.B., Wabash, 1905; A.M., 1906; A.M., Columbia, 1907; Ph.D., 1910; assistan professor, Wabash College, 1909–10; instructor, Columbia, 1911–
JAMES HARVEY ROBINSON
A.B., Harvard, 1887; A.M., 1888; Ph.D., Freiburg, 1890; lecturer in European history, Pennsylvania, 1891; associate professor of European history, 1892; professor of history, Columbia, 1895—
A. Franklin Ross History and Governmen
A.B., Brown, 1899; A.M., 1900; Ph.D., New York University, 1906.

EDWARD M. SAIT				
A.B., Toronto, 1902; A.M., 1903; Ph.D., Columbia, 1911; lecturer in history and public law, Columbia, 1909-				
HENRY H. L. SCHULZE				
A.B., College of the City of New York, 1903; A.M., Columbia, 1905; instructor in German, Williams, 1907-09; tutor, Columbia, 1909; instructor, 1910-				
ROBERT LIVINGSTON SCHUYLER				
A.B., Columbia, 1903; A.M., 1904; Ph.D., 1909; instructor in history, Yale, 1906–10; lecturer, Columbia, 1910–11; assistant professor, 1911–				
James Thomson Shotwell				
A.B., Toronto, 1898; Ph.D., Columbia, 1903; assistant in history, 1900-01; lecturer in history, 1901-03; instructor, 1903-05; adjunct professor, 1905-08; professor, 1908-				
BIRL E. SHULTZ				
A.B., DePauw, 1909; A.M., Columbia, 1911.				
LEWIS PARKER SICELOFF				
A.B., Central, 1900; instructor in mathematics, Buchanan, 1900-02; tutor in mathematics, College of the City of New York, 1905-06; instructor in mathematics, Columbia, 1906-				
CHARLES G. SIMPSON				
Ph.B., Cornell College, 1895; professor of mathematics, Hedding College, 1900-03; instructor in mathematics and physics, Michigan College of Mines, 1903-06; instructor in mathematics, State University of Iowa, 1906-10.				
EDWARD R. SMITH Fine Arts				
A.B., Amherst, 1876; reference librarian, Avery Library, Columbia, 1895-				
HARRISON ROSS STEEVES English				
A.B., Columbia, 1903; A.M., 1904; assistant in English, Columbia, 1905-07; tutor, 1908-10; instructor, 1910-				
EDWARD KELLOGG STRONG, JR				
B.S., California, 1906; M.S., 1909; Ph.D., Columbia, 1911; assistant in psychology, Barnard College, 1909-10.				
EDGAR H. STURTEVANT Latin				
A.B., Indiana, 1898; Ph.D., Chicago, 1901; instructor in Latin, Indiana, 1901–02; acting professor of Greek, Maryville College, 1902–03; acting assistant professor of Latin, Missouri, 1903–05; acting assistant professor of Latin, Indiana, 1905–07; tutor in Classical Philology, Columbia, 1907–10; instructor, 1910–				
ALGERNON TASSIN				
A.M., Harvard, 1893; lecturer in English, Columbia, 1905–10; assistant professor,				
SAMUEL MARION TUCKER English				
A.B., Wofford, 1896; A.M., Columbia, 1901; Ph.D., 1908; head, department of English, Florida State College, 1903-05; dean, Florida State College, 1905-11; head, department of English, Brooklyn Polytechnic Institute, 1911-				

JOSEPH L. TYNAN					
A.B., College of the City of New York, 1901; A.M., Columbia, 1907; tutor in English, College of the City of New York, 1906.					
CARL VAN DOREN					
A.B., Illinois, 1907; Ph.D., Columbia, 1911; assistant in rhetoric, Illinois, 1907-08.					
LEVI THOMAS WILSON					
A.B., Washington and Lee, 1909; A.M., 1910; instructor in mathematics, Woodland College, 1906-07; instructor, Washington and Lee, 1909-10; instructor, Virginia, 1910-11.					
GERALD WEEMAN					
Instructor in boxing, Columbia, 1910–					
Frederick P. Whitaker					
A.B., Stanford, 1905; LL.B., Columbia, 1908.					
ALICE T. WHYTE					
M.Pd., New York University.					
SAMUEL LEE WOLFF					
A.B., Harvard, 1892; A.M., LL.B., Columbia, 1896; Ph.D., Columbia, 1911; assistant professor of English, Tennessee, 1905-07; instructor in rhetoric, Michigan, 1907-08.					
THEODORA ETHEL WYE					
Diploma, Michigan State Normal College, 1900; B.S., Columbia, 1907; assistant in Latin and Greek, Columbia, 1909-					

#### INTRODUCTORY

The statutes of the University (Section 230) define Extension Teaching as "instruction given by University officers and under the administrative supervision and control of the University, either away from the University buildings, or at the University, for the benefit of students unable to attend the regular courses of instruction."

#### Students

Courses in Extension Teaching are planned for two classes of students,—first, men and women who can give only a portion of their time to study and who desire to pursue subjects included in a liberal education of the character and grade of a college or professional school, but without any reference to an academic degree,—second, those who look forward to qualifying themselves to obtain in the future academic recognition, involving acceptance of the work which they may satisfactorily complete in Extension Teaching.

Students who are duly admitted to Extension courses but are not candidates for a degree or diploma are termed *non-matriculated* students. Students who have completed the requirements for admission and have been formally admitted by or in behalf of the Faculty concerned as candidates for a diploma or degree, are termed *matriculated* students.

#### Courses of Instruction

In the academic year 1911–12 regular courses of instruction will in many instances be co-ordinated so as to form at least the first year of collegiate and professional work; thus providing in the evening at Morningside Heights, and elsewhere, courses in subjects which are offered in the Freshman and Sophomore years of Columbia College and Barnard College, so that students may make progress toward the degrees of A.B. and B.S.

There will also be offered at Morningside Heights in the evening subjects which are given in the Schools of Mines, Engineering, and Chemistry, so that a student may pursue some special line of scientific study or prepare himself for the second or third year in these schools.

Evening courses will be offered in architecture which will correspond to the courses of the Columbia University School of Architecture.

Evening courses in Commerce and Finance, forming the first year of a three-year course leading to a certificate in commerce will be given at Morningside Heights.

A series of courses has been arranged which will equip students for the position of secretary. These will require three years for high school graduates and one year for college graduates. (See p. 5.)

Many courses will be offered which will aid a student to prepare for the Schools of Law and Medicine or to complete his preparation for Columbia College or for the scientific schools.

A large number of other courses in varied subjects will be given late in the afternoon and on Saturday which will repeat those in liberal studies offered in the Colleges of the University. These are given in the same manner and often by the same instructors as the regular courses. In many instances university credit will be granted.

Numerous courses will be given at various centres. These will be either regular courses of collegiate grade or those preliminary thereto. Lecture courses arranged in groups of six lectures will also be given in different centres.

Lecture-study courses in certain subjects forming thirty lectures alternating with quiz or conference hours will be given at Morningside Heights and at centres when requested.

#### Registration

Students who expect to attend at Morningside Heights are required to register at the Office of the Registrar, 201 East Hall, 116th Street and Amsterdam Avenue. A student in Extension Teaching will register for one half-year and is required to renew his registration in person at the beginning of the second half-year. Fees must be paid at the time of registration (see below). Students will be allowed to attend one lecture before registration, but thereafter they will be admitted only on presentation of the Bursar's card. The Registrar's office will be open regularly during the day and, from September 25 to October 7, from 6.30 to 10 P.M.; and thereafter from 7 to 9 P.M. Payment of fees should be made at the office of the Bursar, in the same building. Students intending to take courses in any centre will register at that centre in accordance with instructions given in the statements introductory to these courses.

Candidates for admission as matriculated students will be permitted to register provisionally subject to the presentation of satisfactory credentials. Record of attendance will date for matriculated students from Thursday, September 28, for the first term, and from February 7, 1912, for those entering in the second term; for non-matriculated students from October 9 for the first term and from February 14 for the second term. Matriculated students in other schools of the University will be allowed to attend courses in Extension Teaching in accordance with the regulations of the several schools; they must, however, register in the same way as other students in Extension courses. Matriculated students will be required to take at least one course of three hours, or two courses

of one and one half hours per week, but cannot exceed two periods of classroom work or four hours of laboratory work per day.

#### Fees for Extension Courses

r. All students, matriculated or non-matriculated, admitted to Extension courses, must pay at the time of registration the fees determined by the Administrative Board. The fees for Extension courses are determined as a rule at the rate of \$5 per point, i.e., for one hour per week of classroom work, or two hours of laboratory or drawing-room work, through a half-year. All students must pay a registration fee of \$5.00, which is payable but once in the University. Students taking six points each half-year have the privileges of the library, dormitories, and gymnasium.

Unless otherwise directed, students must pay all fees at the office of the Bursar. This office is open daily from 9.30 A.M. to 3.30 P.M., and will be open in the evening from 7 to 9 P.M. from September 25 to October 7; and on Mondays and Thursdays from October 7 to November I and from February 7 to March I, 1912.

Fees must be paid before entering upon the course. Cards of admission are given by the Bursar upon payment of fees. A student will not be allowed to enter upon a course if he does not present a Bursar's card. He may attend one lecture before presenting this card.

The fees and points as stated with the various courses are for the half-year. Should a student desire to withdraw from a course he is liable for the fee up to the end of the term in which notice of withdrawal is received. A student desiring to change his courses after the first two weeks of the term will be compelled to pay a fee of \$1 for such change.

2. Students in courses in local centres will either pay the fee arranged by the local centre or the usual fee described above. Detailed information in regard to the payment of the fee will be given with the statement of the course. Fees determined by the local centres will be paid to the Treasurer of the local centre. Extension students taking courses in local centres who desire to receive credit for their work must fulfil all the requirements of registration and matriculation described above.

#### Admission to Extension Courses

No examination is required for admission to courses offered in Extension Teaching but students must satisfy the Administrative Board that they can pursue the courses with advantage. It is expected that the prospective student in all collegiate and professional courses shall have had a full secondary school education. The courses are open, unless it is otherwise stated, both to men and women. The Administrative Board reserves to itself the right to refuse admission to a course or to withdraw the privilege of attendance upon a course which the student is unfitted to pursue with advantage.

#### Office of Extension Teaching

The office of Extension Teaching is 109 Library. Full information as to this department may be obtained at this office, which is open from 9-5 daily. In the evening the students are referred to the office of the Registrar, East Hall.

#### Location of Extension Courses

Collegiate and professional courses will be given at Columbia University; at 33 East Park Street, Newark, N. J.; in the Educational Department, Central Branch, Y. M. C. A., Fulton and Bond Streets, Brooklyn, and wherever classes of sufficient numbers may be gathered. The most convenient means of access to the University are the Subway (Broadway Branch, 116th Street, Columbia University Station); or the Sixth or Ninth Avenue Elevated, 110th Street Station, 116th Street Station, or 125th Street Station; and Broadway or Amsterdam Avenue surface lines.

The Central Branch, Y. M. C. A., Brooklyn, may be reached by Subway to Hoyt Street, Brooklyn. No. 33 East Park Street, Newark, is near Broad and Market Streets, about ten minutes' walk from the stations of the Pennsylvania R. R., the Delaware, Lackawanna & Western R. R., and the Central Railroad of New Jersey.

#### Calendar and Hours

Columbia University opens on September 27 and Extension courses begin Thursday, September 28. The academic calendar calls for thirty weeks of actual class-work. The examination period for the first half-year runs from January 25 to February I. The second term will open February 7. The examination period for the second half-year runs from May 23 to May 30. The examinations are given in the hours usually assigned to recitations and lectures. The calendar for Extension Teaching is the academic calendar of the University (see p. 42). Extension courses are given usually in the afternoon after 4, in the evening of every week day, and on Saturday from 9 A.M. to I P.M.

Attention is called to the restaurant service at the University Commons maintained for the use of students. Dining-rooms for men and women are located in University Hall. Meals may be obtained at very moderate rates.

A handsomely appointed rest room for women students is located on the first floor of the Philosophy Building.

#### Commerce

Columbia University through its Extension Teaching will offer in the academic year 1911–1912, beginning September 28, evening courses in Commerce and Finance. These will cover the first year of a three-year course. The course will normally require three years of ten or eleven

hours per week each. The academic year presupposes fifteen weeks of residence in each half-year, or thirty weeks for the year.

The object of these courses is to give a thorough training for those who desire to enter upon a business career immediately after leaving high school, and also to provide for the college man instruction in the principles of business and a more exact knowlege of commerce and finance. The intention is to prepare students for the examinations for the certificate of Certified Public Accountant.

There will be added to these courses in the following years a large number of subjects which will form the two remaining years of the Evening School of Commerce. These will include Accounting, Practical Auditing, Costs Accounts, Executors' Accounts, Commercial Geography, Industrial History, Economic History, European Banking, Insurance, Agency, Bankruptcy, etc.

#### Certificates in Commerce

At the close of each half-year students who have completed the course in a manner satisfactory to the Administrative Board will receive from the Registrar a report of standing and, at the close of three years, a certificate of proficiency. For the certificate of proficiency a student must secure 62 points of which not more than 11 may be obtained in any one half-year. He is required, however, to have 4 points in Accounting, 8 points in Commercial Law, 10 points in Commerce (of which 6 must be in the Principles of Economics), and 4 points in Finance (Money and Banking)—making a total of 26 points of required work.

Many of the courses may be taken in the Summer Session of the University. Students will be called upon to give evidence of their attainment in elementary and business English, and in simple bookkeeping. Students deficient in these subjects will be expected to take them before entering upon their course in Commerce.

#### Session

The courses in Commerce are given every week-day evening at 7.30 P.M. (see p. 15), at Morningside Heights, 116th Street and Amsterdam Avenue, adjoining the 116th Street Station of the Subway.

#### Secretarial Courses

Beginning September 28, 1911, the Department of Extension Teaching will provide for men and women a series of courses, given in the afternoon and evening, which will lead to a certificate of proficiency in secretarial studies.

The object of these courses will be properly to equip students who desire to become private secretaries or to hold important positions in offices as assistants to public officials or to persons engaged in professional pursuits. The students who undertake these courses in full must have had a high school education or its equivalent. A complete series will demand three years, although this may be reduced by attendance at Summer Sessions, or by obtaining advanced standing on the presentation of evidence of having completed any course or its equivalent.

Students may make use of the late afternoon courses as well as those in the evening, but evening students are not allowed to exceed 10 hours in a week.

#### Commerce and Finance

Commerce and I manoe				
Principles of economics.  Money and banking.  Accounting.  Business organization.  Commercial law.	3 points each half-year 2 " " " " 2 " " " " 2 " " " " "			
English				
English composition (A1-A2)  English composition (B1-B2)  English or American literature	3 points each half-year 2 " " " " " 2 " " " " "			
French				
Elementary or intermediate French (A1-A2 or B1-B2)	3 points each half-year 2 " " " "			
German				
Elementary or intermediate German (A1-A2 or B1-B2)	3 points each half-year			
Government				
Politics I-2	3 points each half-year			
History				
General history (History A1-A2)	3 points each half-year			
Spanish				
Elementary Spanish	3 points each half-year			
Stenography and Typewriting				
Stenography and Typewriting 4	points for one half-year			

College students who have secured the A.B. or B.S. degree will be eligible for the certificate of proficiency in one year. They will be required to take courses aggregating 14 points including accounting, commercial law, money and banking, business organization, stenography and typewriting. They must have a knowledge of simple bookkeeping and principles of economics, also French, German and Spanish.

# Regulations Governing Credit toward the Degrees of A.B. and B.S., Columbia College, Barnard College, and Teachers College

Courses in Extension Teaching approved by the Committees on Instruction of Columbia College and Barnard College may be credited toward the degrees of A.B. and B.S. for matriculated students registered in Extension Teaching who maintain a grade of C or higher.

Students of Columbia College and Barnard College will be allowed to attend Extension courses which are approved by the Committees on Instruction and will be allowed to count them toward the degrees of A.B. and B.S. under the following regulations:

- 1. The election of Extension courses must be approved by the Committees on Instruction.
- 2. Students will not be allowed to exceed a total of 19 hours per week (16 hours in Barnard College) including the hours of Extension courses, save for reasons of weight and by the special permission of the Committees on Instruction.
- 3. Students desiring these courses to count toward the degrees of A.B. and B.S. must obtain at least a grade of C.
- 4. Students electing Extension courses after obtaining the approval of the Committees on Instruction must make application to the Director of Extension Teaching, 109 Library, and after approval of the application must register for these courses at the office of the Registrar and must pay the special fees required for such courses.

# Teachers College

Teachers College will continue to give, as hitherto, college credit for Extension courses, according to regulations that may be learned upon application to the Secretary of Teachers College.

# Relation of Extension Teaching to other University Work

- 1. Students taking Extension courses who desire to become candidates for higher university degrees will make application to be received as such to the Dean of the Graduate Faculties.
- 2. Students taking Extension courses who desire to become candidates for the degree of Bachelor of Arts or Bachelor of Science or for professional degrees in Science, Law, and Medicine will make application to be

received as such to the Committee on Undergraduate Admissions, Room 310, East Hall.

3. Students taking Extension courses who desire to become candidates for a diploma in teaching or for the professional degree of Bachelor of Science in Education will make application to be received as such to the Secretary of Teachers College.

# Admission Requirements for Matriculated Candidates for Degrees or Diplomas

(a) The requirement for admission to the University as candidate for the A.M. degree is the diploma of A.B. or B.S. or its equivalent from an approved college or scientific school.

(b) The requirement for admission to the University as a candidate for the A.B. or B.S. degree is set forth in the *Announcement of Entrance Requirements* for 1911–1912, which may be obtained on application to the

Secretary of the University.

(c) The entrance requirement for admission to Teachers College as candidate for the B.S. degree is substantially the same as for candidates for the A.B., but two years of work in a college, scientific school, normal school, training school, or technical school are required in addition as prerequisite to admission to its two-year professional courses.

#### Attendance

For credit toward a degree or for a certificate of proficiency, attendance at nine tenths of the sessions is required in addition to the proficiency attested by examination.

#### Absences

It is a student's duty to attend punctually each class or laboratory exercise in each course.

A student may be absent without penalty in a half-year, as follows: from a one-point course, twice; from a two-point course, three times; from a three-point course, five times; from a four-point course, six times; from a five-point course, seven times.

In case this limit is exceeded, a student receiving a grade of D shall not be entitled to credit for that course; a student receiving a grade of C or higher may submit a statement showing the cause of each absence. If, in the judgment of the Administrative Board, these causes were imperative, full or partial credit for the course may be assigned by the Director upon the recommendation of the Administrative Board, in accordance with the extent and reason of the student's absences and the standing attained in the course.

Tardiness shall count as half an absence.

#### Examinations

Two examinations are regularly held, one at the close of the first halfyear and the second on the termination of the course. For examination at special times the fee is \$5 for each course.

Students who fulfill the conditions of registration, attendance, and accomplishment of work prescribed, together with the payment in full of the fee for the course, will receive a report of standing from the Registrar within three weeks after the close of each half-year.

The student's performance in a course is reported according to the following grades: A, excellent; B, good; C, fair; D, poor; F, failure. Grades A, B, C, and D pass a student in the course. In graduate courses P indicates passed, F, failure. H indicates a record of satisfactory attendance only.

#### Library Privileges

The Library of Columbia University and the Bryson Library at Teachers College are open for reference to all students registered in Extension Teaching. All teachers and non-matriculated students taking courses amounting to at least six points have the privilege of withdrawing books.

#### Local Centres

To facilitate the work of instruction away from the University, the Administrative Board may institute local centres. Local centres may be established wherever a local community or a local organization undertakes to offer, year by year, one or more of the Extension courses of the University. Local boards of education, teachers' associations, schools, societies, and clubs, desirous of offering Extension courses, may be constituted local centres. In general, however, a special local committee (president, secretary, treasurer, and five members representing the particular community) is the usual organization of the local centre.

Local centres are responsible, through the local committee, for the effective arrangement of Extension courses they offer. They determine the courses in co-operation with the Director; they enlist local interest; they provide, by fees or the sale of tickets or otherwise, for all the expenses of their work—the course fee, the cost of syllabi, the travelling expenses of the lecturer, lecture-hall, janitor, printing and advertising, and when lectures are to be illustrated they must provide the lantern and operator. The Administrative Board will establish and conduct local centres where suitable arrangements may be made and sufficient guarantees secured.

#### COURSES OF INSTRUCTION

Note.—The University reserves the right to withdraw, substitute, or change any courses which are named in this statement.

Courses corresponding and equivalent to prescribed courses of Columbia

College are designated by letters: A, B. AI, BI, refer to the first half-year's work (September-January) in such a course; A2, B2, to the second half-year's work (February-May). In numbered courses, odd numbers designate the first, even numbers the second, half-year. A course designated thus: I-2, 2I-22, etc., runs through two half-years, beginning in September.

In the statement of each course the prerequisites are indicated, except that the equivalent of the first half of a hyphenated course (e. g., Botany e1-2) is always assumed to be a prerequisite for admission to the second half. When no department is named, it is to be assumed that the reference is to a course in the same department.

#### Credits

The academic credit that may be awarded to students who give evidence of having completed the prerequisite work required by the several faculties is regularly indicated in connection with the statement of each course.

All courses marked Credit I—May be counted toward the degrees of A.B., B.S., and appropriate diplomas in teaching.

Ia—May be counted toward the degree of Mus. B.

All courses marked Credit II—May be counted by graduate students toward the degree of A.M.

All courses marked Credit IV—May be counted toward the appropriate diplomas in teaching, and as a professional option in Teachers College toward the degrees of A.B. and B.S.

All courses marked Credit V—May be counted toward the appropriate degrees in the Schools of Mines, Engineering, Chemistry, and Architecture.

All courses marked Credit VIII—Cannot be counted toward any degree or diploma in teaching.

The fees and points as stated with the various courses are for each halfyear.

Accounting (see Commerce, p. 15)

#### Agriculture

A special circular on the courses in Agriculture may be obtained from the Secretary of the University.

#### Architecture

The following evening courses in Architecture will be offered in the year 1911-12. They cover the first year of the School of Architecture and the greater part of the work taken in the second year. These will count to-

ward the certificate and the degree in Architecture for those who have passed the entrance examinations (see special circular). They are open however to qualified students without examination.

Courses eX and eZ are intended for students who have not had any training in mathematics, and construction.

A matriculated student receives the degree in Architecture when he has acquired 153 points. He receives a certificate in Architecture when he has acquired 129 points. For schedules of subjects and points see pp. 18-20 of the Announcement of the Faculty of Fine Arts.

The number of points is indicated with the statement of the course.

City Planning (see Fine Arts, p. 22).

eWi-Freehand drawing. One hour lectures and six hours drafting per week. Mr. Beans

7.20 P.M., Monday, Wednesday, and Friday. Room 612 Engineering. Fee \$20.

Repeated in second half-year if called for.

This course will consist of practice in drawing from casts in outline, in light and shade, and in the elements of free-hand perspective.

It is intended to give a solid foundation in the principles of freehand drawing from a structural standpoint and it is the aim to develop a perception of form, proportion, and construction as well as facility in representing the same.

The instruction will consist almost entirely of individual criticism and the student will be urged to go as far as his individual ability will allow.

eX1-X2—Elements and applications of algebra, geometry, and trigonometry. Professor Hodge

6-6.50 P.M., M. and F., Room 203 Hamilton. Fee, \$15.

The introductory work of this course will consist of a drill in the principles and applications of elementary algebra through quadratics. This will be followed by a brief treatment of a few of the most fundamental propositions of geometry. The last part of the course will be devoted to plane trigonometry and its applications to problems of a purely practical nature, and will include drill in the use of logarithms and the slide rule. The course is intended solely for men who are engaged in practical work and who do not intend to enter the University. (See p. 28.)

eZ1-Z2—Mechanics applied to construction. 2 points. Professor Burnside

6-6.50 P.M., Tu. and F. Room 202 Hamilton. Fee, \$15.

Algebraic and graphic methods are considered in parallel; composition and resolution of forces; principles of equilibrium; static friction; determination of stresses in simple jointed frames such as trusses and cranes; centroids, moments of inertia, and radii of gyration of built-up beam and column sections; tension, compression, and shear; strengths of beams and columns; and riveted joints.

Prerequisites: Elements and applications of algebra, geometry, and trigonometry, or the equivalent.

e1a-2a—The elements of architecture. 2 points. Mr. HARRIMAN 8.10-9.50 P.M., W., through the year, one hour lecture and one hour drafting. Room 601 Engineering. Credit V. Fee, \$10.

Mouldings, the orders, intercolumniation and superposition, balustrades, arcades, doors, windows, roofs, spires, vaults, domes.

Text-book: Ware, The American Vignola.

### e2-Applied elements. 2 points. Mr. HARRIMAN

8.10-10 P.M., M.; 9.10-10, Tu.; 8.10-10, W.; 7.20-10, Th.; 8.10-10, F. Eight hours, second half-year only. Room 601 Engineering. Credit V. Fee, \$10.

Exercises in applications of elementary architectural forms as given in course e1, of shades and shadows as given in course e5, and of architectural drawing and rendering in e3.

#### e3-Architectural drawing. 2 points. Mr. HARRIMAN

9.10-10 P.M., Tu.; 8.10-10, W.; 7.20-10, Th.; 8.10-10, F. Eight hours. First half-year. Room 601 Engineering. Credit V. Fee, \$10.

Careful drawing on a large scale of the Orders of Architecture as taught in course er; the Elements of Architectural Drafting, with interpretation of light, shade, and shadow; drawings of plans and elevations of small buildings with accessories, backgrounds, sky, and foliages in washes of India ink or ink and color.

### e5-Shades and shadows. 4 points. Mr. INGLE

7.20-8.10 P.M., M., W., and F.; 7.20-9.10 Tu. Room 601 Engineering. First half-year. Credit V. Fee, \$20.

Shades and shadows, projections and intersections; 3 hours lectures, 2 hours in drafting room.

#### e6-Perspective. 4 points. Mr. INGLE

7.20-8.10 P.M., M., W., and F.; 7.20-9.10, Tu. Room 601 Engineering. Second half-year. Credit V. Fee, \$20.

Twelve plates are required.

e21-22—Ancient architectural history. 2 points. Mr. R. F. BACH 6-6.50 P.M., M. and W., 2 hours. Room 609 Havemeyer. Credit V. Fee, \$10.

Text-book: Simpson, A History of Architectural Development, vol. i.

e31-32—History of ancient ornament. I point. Mr. R. F. BACH 6-6.50 P.M., Tu. Room 609 Havemeyer. Credit V. Fee, \$5.

The decorative forms of Egyptian, Assyrian, Greek, and Roman art.

e7-8—Descriptive geometry—2 hours lectures. 16 to 24 plates required. 4 points first half-year, 3 points second half-year in the School of Architecture. Mr. Harrington. Credit V. Fees, \$20 first half-year; \$15 second half-year.

6-6.50 P.M., M. and W., Room 601 Engineering.

e11-12—Specifications—3 hours lectures, 3 hours in drafting-room. 5 points first half-year, 4 points second half-year. Mr. HINTERMYER

8.10-9 P.M., M., W., F.; 7.20-10, Th. Room 410 Engineering. Credit V. Fee, \$25 first half-year: \$20 second half-year.

General clauses and law of contracts; carpentry, slow-burning construction, interior finish; structural iron and steel; masonry, foundations, terra-cotta, fire-

proofing, re-enforced concrete; roofing, hardware; painting and glazing; plumbing and drainage; electric wiring; heating and ventilation. Model specifications explained.

er3-14—Building materials—2 hours. 2 points. Mr. HINTERMYER 9.10-10 P.M., M., W. Room 410 Engineering. Credit V. Fee, \$10.

Chemistry, physics, botany, geology, and properties of building materials; wood, wrought iron, cast iron, steel, bricks, cements, asphalt, stone, re-enforced concrete, terra-cotta, glass, paints, metals.

Text-book: Munby, Chemistry and Physics of Building Materials.

e23-24—Mediæval architectural history—2 hours lectures, and 15 hours original research in the second half-year. Exercises in historical design. 2 points. Mr. R. F. BACH

7.20-8.10 P.M., M. and W. Room 609 Havemeyer. Credit V. Fee, \$10.
Early Christian, Byzantine, Romanesque, Gothic, and Oriental architecture.
Text-book: Hamlin, History of Architecture.

#### Biblical Literature

The poetry of the Old Testament. Dr. Hodge. 12 lectures. Wednesday, 11.30, January 3 to March 20, at residence of Mrs. A. C. Zabriskie, 34 West 53d street. Fee, \$12. Credit VIII.

This is a course in the Books of Psalms, Proverbs, Job and Ecclesiastes, considered as writings containing a variety of devotional and reflective expressions of the religious spirit, composed at a time when the consciousness of the Jewish people was profoundly affected by the rise of individualism.

History of Old Testament times. Dr. Hodge. 12 lectures. Thursday, 11.30, January 4 to March 21, at residence of Mrs. V. L. Montague, 49 West 72d Street. Fee, \$12. Credit VIII.

This is a course in the evolution of race consciousness, in which the ancient Hebrew scriptures will be treated as race, memory, and contemporaneous records and other sources will be drawn upon to illustrate the part played by the Hebrew people among its neighbors during the Old Testament period.

Other classes will be organized in Manahttan, Brooklyn, and elsewhere.

# Bookkeeping (see Commerce, p. 15)

#### Botany

er-2-Nature and development of plants. Lectures and laboratory. 4 points. Dr. Darling

7.20-8.35 P.M., Tu. and Th., Room 505, Schermerhorn. Laboratory, 8.35-9.50 P.M., Room 502, Schermerhorn. Credit I, IV. Fee, \$20.

Organs, structure, and work of the plant; development of plant life through an examination of the important biologic types.

e1a-2a—General botany. Lectures and laboratory. 2 points. Professor Curtis and Dr. Darling

1.10 P.M., S., Room 505, Schermerhorn. Laboratory, 2.10-4 P.M., Room 502, Schermerhorn. Credit I, IV. Fee, \$10.

This course consists of two parts: 1. The structure and physiology of plants.

2. The evolution of plants. Part I will be given in 1911-12.

e3a-4a—Plant morphology. Lectures and laboratory. 2 points. Professor Curtis and Mr. Dodge

9-10 A.M., S., Room 505, Schermerhorn. Laboratory, 11-12 A.M., Room 502, Schermerhorn. Credit I, IV. Fee, \$10.

This work consists of two parts: 1. The morphology and development of seed plants. 2. The relationship of flowering plants. Part 2 will be given in 1911-12.

e5-6—Students having completed the preceding courses may continue their work by registering for this course, the hours and character of the work to be determined upon consultation with Professor Curtis. Fee \$10.

#### Business Organization (see Commerce, p. 15)

#### Chemistry \*

eA1-A2—General chemistry, college course. Elementary course for students beginning the study of chemistry. 2 lectures, 1 recitation, and 2 hours laboratory practice. 4 points. Dr. Neish

7.20-9.50 P.M., Tu. and Th., Room 103, Havemeyer. Credit I, IV. Fee. \$20.

This course is a duplication of the day course A1-A2.

This course covers the requirements of the College Entrance Examination Board in chemistry. It is equivalent to Chemistry A; is accepted for admission to the Schools of Mines, Engineering, and Chemistry, is prerequisite to the general inorganic chemistry at the College of Physicians and Surgeons, and for advanced courses in Domestic Science. This course is a prerequisite for the other courses in chemistry given in the Evening Session and to the first-year chemistry in the Schools of Mines, Engineering, and Chemistry.

Text-book: Smith's General Chemistry for Colleges.

e3-4—General inorganic chemistry. 2 one-hour lectures and 2 one half-hour recitations. 3 points. Dr. Kress

7.20-8.35 P.M., Tu. and Th., Room 301, Havemeyer. Credit I, IV, V. Fee, \$15.

This course, which presupposes a knowledge of general chemistry (eA), considers the history, occurrence, preparation, and properties of the elements and their principal compounds, and is accepted as equivalent to the Chemistry 3-4 required of all first-year students in the Schools of Mines, Engineering, and Chemistry.

e41-42—Organic chemistry, elementary lecture course. 2 points. Dr. Nelson

8.35-9.25 P.M., Tu. and Th. Room 413, Havemeyer. Credit I, IV, V. Fee, \$10.

Instruction will be given on both the aliphatic and the aromatic series of organic compounds, including the hydrocarbons, alcohols, ethers, organic acids, fats, waxes, soaps, cyanides, sugars and other carbohydrates, alkaloids, coloring matters, drugs, perfumes, etc. The lectures will be illustrated by material from the museum and as far as possible by experimental demonstration. This course is accepted

as the equivalent of Chemistry 41-42 and is of especial advantage to students of pharmacy and medicine.

Open to students who have completed Chemistry e3-4 or, with the consent of the instructor, to those who have completed Chemistry eA with distinction.

Text-book: Perkin and Kipping's Organic Chemistry.

e61-62—Qualitative analysis. 2 lectures and 5 hours laboratory work. 4 points. Dr. Beans and Dr. W. C. Moore. Fee, \$20.

7.20-9.50 P.M., M., W., and F. Lectures, Room 511, Havemeyer. Laboratory, Room 515, Havemeyer. Credit I, IV, V.

This course which presupposes only a knowledge of general chemistry (A), takes up the theory and practice of qualitative analysis, as based upon the principles of physical chemistry, and will be accepted as equivalent to the course Chemistry 6r or 62 required of all first-year students in the Schools of Mines, Engineering, and Chemistry.

Note.—Students who have previously completed the greater part of this course may, with the consent of the Director, register for the remainder, counting it I to 3 points.

Commercial Law (see Commerce, p. 15)

Construction (see Architecture, p. 11)

Economics (see Commerce, p. 15)

#### COURSES IN COMMERCE

#### Accounting

eX1-X2-Elementary bookkeeping. Mr. KOOPMAN

7.20-9 P.M., S. Room 516 Schermerhorn. Fee, \$15.

e1-2—Principles of accounting. 2 points each half-year. Mr. Mont-Gomery

7.30-9.20 P.M., Th. Room 405 Kent. Fee, \$10.

#### Commerce

e1-2—Principles of economics. 3 points each half-year. Professor AGGER 7.30-10 P.M., M. Room 503 Hamilton. Fee, \$15. Credit I, IV. e3-4—Business organization. 2 points each half-year. Mr. Forsyth 7.30-9.20 P.M., W. Room 503 Hamilton. Fee, \$10.

#### Finance

er-2—Corporation finance. 2 points each half-year. Mr. Anderson 7.30-9.20 P.M., Tu. Room 503 Hamilton. Fee, \$10.

e3-4—Money and banking. 2 points each half-year. Professor AGGER 7.30-9.20 P.M., Th. Room 503 Hamilton. Fee, \$10. Credit I, IV.

#### Commercial Law

eI—Contracts. 2 points first half-year. Mr. WHITAKER
7.30-9.20 P.M., F. Room 405 Kent. Fee, \$10.
e2—Negotiable paper. 2 points second half-year. Professor BURDICK
7.30-9.20 P.M., F. Room 405 Kent. Fee, \$10.

	FIRST HALF-YEAR	SECOND HALF-YEAR
Monday 7.30-10	Principles of Economics, 3 pts.	Principles of Economics, 3 pts.
Tuesday 7.30-9.20	Corporation Finance, 2 pts.	Corporation Finance, 2 pts.
Wednesday 7.30-9.20	Business Organization, 2 pts.	Business Organization, 2 pts.
Thursday 7.30-9.20	Money and Banking, 2 pts. Principles of Accounting, 2 pts.	Money and Banking, 2 pts. Principles of Accounting, 2 pts.
Friday 7.30-9.20	Commercial Law (Contracts), 2 pts.	Commercial Law (Negotiable Paper), 2 pts.
Saturday 7.20 P.M.	Elementary Bookkeeping	Elementary Bookkeeping

For business English, see p. 19; for psychology of advertising, see p. 32; and for stenography and typewriting, see p. 55.

### **EDUCATION\***

The following courses are given in Teachers College.

### History of Education

Teachers College. Education Bc—Principles of education. 2 points. Professor Kilpatrick

9 A.M., S. Credit IV. Fee, \$15.

Education 103-104—The educational theories of Herbart and Froebel. 4 points. Professor Kilpatrick

4 P.M., M. and W. Fee, \$30.

Education 201-202—History of education. Special graduate section. Professor Monroe

4 P.M., Tu. and Th. Fee, \$30.

Education 203-204—Practicum. History of Education in the United States. Professor Monroe

4-6 Р.М., F. Fee, \$30.

\* The fees for hyphenated courses are given for the year. Students will register and pay fees at Teachers College for all courses in Education.

#### Philosophy of Education

Education 7—Social life and the school curriculum. 2 points. Professor Dewey

5 P.M., M. and W. Fee \$15.

Education 205-206—Practicum. Philosophy of education. Advanced course. Professor MacVannel

Section II. 10-12 A.M., S. Fee, \$30.

Education 207-208—Practicum in educational sociology. Advanced course. Professor Suzzallo

2-4 P.M., M. Fee, \$30.

#### **Educational Administration**

Education 111-112—School administration. 4 points. Professor DUTTON

4 P.M., Tu. and Th., with conferences to be arranged. Fee, \$30.

Education 113—Comparative education. 3 points. Professor FAR-

Section II. 4 P.M., M. and F. Fee, \$22..50.

Education 213—Practicum. Comparative education. Professor FARRINGTON and Dean RUSSELL

2-4 P.M., M. Fee, \$15.

Education 215-216—Practicum. Administration of public education in the United States. Professor Strayer

Section II. 4-6 P.M., W. Fee, \$30.

# Educational Psychology

Education 21-22—The psychology of childhood. 4 points. Professor Norsworthy

2 P.M., Tu. and Th. Fee, \$30.

Education 24—The psychology and education of exceptional children. 2 points. Professors Norsworthy and Thorndike

2-4 P.M., M. Fee, \$15.

Education 117-118—The application of experimental and physiological psychology to education. 4 points. Professor Ruger

4 P.M., M. and W. Fee, \$30.

Education 124—The psychology of the elementary school subjects.
2 points. Professor THORNDIKE

2 P.M., W. Fee, \$15.

Education 223-224—Practicum. Professor Thorndike 4-6 P.M., M. Fee, \$30.

# Secondary Education

Education 127-128—Secondary education. Advanced course. 6 points. Professor Sachs and Miss Stevens

4 P.M., M., W., and F. Fee \$ 45.

Education 225-226—Problems in secondary education. Professor Sachs and Miss Stevens

9-11 A.M., S. Fee, \$30.

Education 229-230-Practicum. Professor Sachs

11-1 A.M., S. Fee, \$30.

Education 131ab-132ab—Theory and practice of teaching in elementary schools. Class work, 4 points. Professor HILLEGAS

9-11 А.М., S. Fee, \$30.

Education 141a-142a—The relationship of the kindergarten to the primary school. 2 points. Miss Moore

9 A.M., S. Fee, \$15.

Education 233-234—Practicum. Professor HILLEGAS

2-4 P.M., Tu. Fee, \$30.

A special circular of afternoon and Saturday courses in the **Theory and Practice of Teaching** in the following subjects: Biology, English, Fine Arts, French, Geography, German, Greek, History, Household Arts, Industrial Arts, Latin, Mathematics, Music, Nature Study, Physical Education, and Physical Sciences may be had upon request to the Secretary of Teachers College.

#### Engineering

#### Civil

eI-2—Theory of plane surveying. For first-year students in the Schools of Mines, Engineering, and Chemistry. 2 points. Mr. FINCH

7.30-9.10 P.M., Th., Room 402, Engineering. Credit I, IV, V. Fee, \$10.

Methods of measuring angles and distances. Cumulative and compensating errors, and corrections to be applied. Limits of precision. Use, care, and adjustment of the engineer's transit, level, and compass. Magnetic declination and variation. Local attraction. Relocation of old lines by compass bearings. Erroneous standards. Surplus and deficiency. Significance of monuments. Traverses; computations of area and error of closure. Laying out and dividing up land. System of public land surveys. Topographic surveys; transit stadia and plane table methods. Triangulation. City surveying, subdivision, and resurveys. Interpretation of deed descriptions.

Prerequisite—Plane trigonometry.

Text-book: Tracy's Plane Surveying.

# eX1-X2-Theory of railroad surveying. Mr. FINCH

7.30-9.10 P.M., M., Room 402, Engineering. Fee, \$15. Prerequisites—Plane surveying, trigonometry, algebra.

Railroad location in general. The relation of railroad surveys to the problem of railway location. The object of the Reconnaissance, preliminary and final locations and outline of methods used. The permanent way. Field work: Simple curves. Compound curves. Reverse curves. Transition curves. Frogs and switches. Turnouts and cross-overs. Yard work. Cross-sectioning. Office work: The profile. Computation of earthwork. The mass curve for the proper distribution of earthwork. Estimates of cost.

Two hours a week partly lecture and partly problem work. Students will be required to work out numerous practical problems in connection with the theoretical work.

Text-book, Nagle, Field Manual for Railway Engineers.

#### English

# eV1-V2-English for foreigners. Mr. Duncan

4.30-5.20 P.M., M. and F., Room 503, Hamilton. Fee, \$15.

This course is designed to familiarize foreigners with English idiom and to give them practice in the use of the English language. It will take account of both pronunciation and grammar.

# eW1-W2-English grammar and composition. Business English. Mr. Duncan

6.10-7.00 P.M., M. and F., Room 503, Hamilton. Fee, \$15.

This course is intended for mature students who feel the need of instruction in the elementary conventions of English expression.

# eXI-X2—College entrance English. Books for reading. Reading of texts, themes, conferences, tests, lectures, discussions. Mr. Gaston

4.30-5.45 P.M., M. and F., Room 502, Hamilton. Sixty sessions. Fee, \$20.

This course is designed to aid in preparing for English a, as required for admission to College and to the Schools of Mines, Engineering, and Chemistry. Each week certain texts will be read and themes prepared. The successful completion of this course will count toward the removal of entrance conditions in English.

# eY1-Y2—College entrance English. Books for study. Study of texts, themes, tests, lectures, discussions. Mr. MITCHILL

4.30-6 P.M., W., Room 502, Hamilton. Thirty sessions. Fee, \$15.

This course is designed to aid in preparing for English b, as required for admission to College and to the Schools of Mines, Engineering, and Chemistry.

The successful completion of this course will count toward the removal of entrance conditions in English.

# eA1-A2—English composition. Lectures, themes, and conferences. 3 points. Dr. Wolff

7.20-8.35 P.M., M. and W., Room 502, Hamilton. Credit I, IV. Fee \$15.

This course corresponds to English A in Columbia College.

# eA3-A4—Composition and rhetoric. Lectures, themes, and conferences. 1½ points. Dr. Wolff

11-12.15 A.M., S., Room 202, Hamilton. Credit I, IV. Fee, \$7.50.

This course is equivalent to one half of English A. It is offered for teachers and students who also desire to gain a knowledge of the principles of rhetoric and English composition as they are now taught in the colleges.

Two one-page themes or one three-page theme a week will be called for.

e17-18—Modern literature, English and foreign. 2 points. Mr. STEEVES 7.30-8.20 P.M., W. and F., Room 507, Hamilton. Credit I, IV. Fee, \$10.

This course is a general survey of the principal current literary types, tracing their characteristics from the influences prevalent in the Victorian period, and giving attention to foreign artistic sources and parallels. The course requires extended and rapid outside reading of a weekly average of possibly three hundred or four hundred pages. The required reading can generally be found in the branch libraries of the New York Public Library.

e1a-2a—English composition. Advanced course. Lectures, themes, and theme criticism. 1½ points. Dr. RISTINE

9-10.15 A.M., S., Room 516, Hamilton. Credit IV. Fee, \$15.

Open to students who have passed English A or Aa with high standing or to special students of maturity. This course presumes a knowledge of formal rhetoric and training in the essentials of composition, correctness, and precision. From two to four pages of manuscript (250-500 words) are required each week,

e1b-2b—English composition (advanced). Theory of fiction writing. The short story. Mr. PITKIN

10.20-11.35 A.M., S., Room 516, Hamilton. Fee, \$15.

In this course story writing is studied from the point of the literary critic and also as far as possible from that of the writer. Details of construction will be investigated and the student called upon to contrive plots, depict characters and incidents, and to write at least three stories of over 3000 words each during the year. No special previous training is required but those wishing to enter the course must submit during the first week a story or sketch of not more than 5000 words as evidence of competency.

e1c-2c—English composition (advanced). Theory of fiction writing. Second course in the short story. Mr. PITKIN

11.45 A.M.-1 P.M., S., Room 516, Hamilton. Fee, \$20.

This course is open only to the following students: those who have done promising work in  $\mathbf{rb-zb}$ ; those who have not completed  $\mathbf{rb-zb}$  but submit at the outset a story of evident merit; and those graduate students specializing in English composition who wish advanced training in theory and criticism.

e9-10—The English language and modern English grammar. 2 points. Professor GRIFFIN

4.10-5.50 P.M., F., Room 307, Hamilton. Credit I, IV. Fee, \$10.

This course is intended primarily for teachers in the upper grades and in high schools. The course is divided into two separate courses, each of which may be taken independently of the other. The first course consists of an historical survey of the development of the English language and occupies the first semester. The second course consists of a study of a variety of special topics in Modern English grammar and occupies the second semester. (Consult Emerson, History of the English Language. Clarendon Press, 93 Fifth Avenue.)

erra-12a—Public speaking. 2 points. Mr. Dow

7.30-9.30 P.M., Th., Room 301, Hamilton. Credit I, IV. Fee, \$10.

This course will deal with public address. Its aim is to give practical training to men and women of whom speaking is demanded in their profession. The first hour will be given to delivering of prepared speeches, the second to special training before the class. e19-20—The history of American literature. 2 points. Dr. VAN DOREN

9-10.40 A.M., S., Room 507, Hamilton. Credit I, IV. Fee, \$10.

The course is intended to furnish an account of literary production in America from the beginnings to the present day. Special attention will be given to literary movements in their relation to the political and social background. Assigned readings in important authors will supplement lectures and recitations.

e23a-24a—The history of English literature. 2 points. Professor

10.40-12.20 A.M., S., Room 507, Hamilton. Credit I, IV. Fee, \$10.

e35a-36a—Shakspere. 2 points. Professor TASSIN II-12.40 A.M., S., Room 402, Hamilton. Credit I, IV. Fee, \$10.

An introduction to the study of Shakspere, the condition and character of his life and work and the technic of his plays studied from the dramatic rather than from the literary point of view.

e41a-42a—Contemporary dramatic literature. 2 points. Mr. HAMIL-

10-11.40 A.M., S., Room 511, Hamilton. Credit I, IV. Fee, \$10.

In this course study will be made of representative works of the leading modern dramatists from Victor Hugo to Sir Arthur Pinero. Special attention will be devoted to the evolution of contemporary stagecraft. The best new plays presented during the current theatre season in New York will also be analyzed from the point of view of the dramatic critic. The course will be especially helpful to students who desire subsequently to write plays or to write dramatic criticism; it will bring the actual theatre of to-day within the reach of academic study.

e41b-42b—Technic of the drama. History and theory of dramatic composition. 2 points. Mr. Tynan

4-5.40 P.M., F., Room 309, Hamilton. Credit IV. Fee, \$10.

This course is intended for those who wish instruction in the theory of the drama and in the relations of the technic of the drama to the technic of acting and for teachers of drama and literature.

Students entering this course should have had two years of college English or its equivalent.

e51a-52a—Voice and oral reading. Lectures, discussions, and practice. I point. Miss Соок

II-II.50 A.M., S., Room 305, Philosophy. Credit IV. Fee, \$7.50.

This course is designed (a) to help teachers to improve all oral exercise in the class room, and (b) to make oral reading intelligent, natural, and pleasurable.

In accordance with the first aim the course deals with tone production, with the sounds in English speech, and with phonic drills especially designed to correct common errors. In accordance with the second aim, it deals with the principles of expression and the selection of material for reading and suggests means of correcting prevalent bad habits in reading aloud.

e61a-62a-Oral composition in elementary schools. 1 point. Miss

10-10.50 A.M., S. Room 305, Philosophy. Credit IV. Fee, \$7.50.

This course involves (a) the study and application of the principles of composition and expression to oral exercises; and (b) the organization of material of composition to this end. The aim of the course will be to train the teacher in the kind of work required by the newer methods of composition teaching. Practical work in oral composition and demonstration lessons showing selection and use of original material will be required.

First half-year: Oral work during the first four years. Incentives to speech and the cultivation of observation. Use of stories, pictures, objects, and topics. Simple descriptions and explanations and the telling of simple incidents. Dialogues.

Second half-year: Oral work during the last four years. Special attention to the massing of material and to sentence form and variety; also to posture, voice, and bearing. More sustained description and the relating of incidents; dramatic scenes; exposition; simple argument.

Finance (see Commerce, p. 15)

#### Fine Arts

e51-52—Introduction to the history of art: Ancient, Mediæval, Renaissance, Modern, and Oriental. Mr. Smith

8-9.15 P.M., F., Avery Library, Room 211, Library. Credit IV. Fee, \$10.

This course will cover the development of the arts of painting and sculpture, and, to a limited extent, of the derived and dependent arts. The point of view will be historical, noting the appearance and growth of national characteristics, and of the artistic types which express these characteristics. The history of art will be shown not so much in the succession of monuments as in the development of style. It is especially desired to make the course useful to practical people—painters, sculptors, and designers. Students who are able to draw will be given opportunity to illustrate their notes with sketches of typical and important works. Attention will be given to methods and processes; carving, modelling, fresco, etc. The large resources of the Avery Library will be available for reference, and will furnish abundant illustration.

eroo—City planning—fifteen lectures, profusely illustrated, conferences.

Mr. FORD

4.00-5.50 P.M., W., Room, 211 Library. Credit II, V. Fee, \$15.

This course will deal with the social, economic, political, and legal, as well as the asthetic aspects of city planning. Its aim is to show the interdependence of these phases of the subject, and how necessary the consideration of one and all is to a comprehensive understanding of the subject. This subject will be studied historically, comparatively, and analytically to the end of discovering, correlating, and finding how to adapt to particular cases the underlying principles of the new art and science of city planning.

French (see Romance Languages, p. 32)

#### Geology

er—General geology—a general introduction to the subject of geology. 3 points. Professor Grabau

7.20-9.00 P.M., W. and F. Room 401, Schermerhorn. Credit I, IV. Fee, \$15.

This course covers an introduction to the common rocks, their structure, origin, and occurrence in nature; weathering of rocks and its products, geological activities of the air, the streams, and the sea; characteristics and work of glaciers, volcanoes, and earthquakes.

The laboratory work consists of a study and identification of common rocks, drawing of structure sections, interpretation of topographical maps, etc. There will be several field trips on Saturday afternoons.

No prerequisite. Equivalent to Geology r in Columbia College. A knowledge of elementary chemistry is desirable.

Text-book: Chamberlin & Salisbury, College Geology.

e2—Historical geology—the origin of the earth and its astronomical relationships. 3 points. Professor Grabau

7.20-9.00 P.M., W. and F. Room 401, Schermerhorn. Credit I, IV. Fee, \$15.

This course deals with the origin of continents and ocean basins and their development during successive geologic periods, characteristic sections and their interpretation, study of important types of fossils as indications of geologic age. The glacial period and the antiquity of man. Development of surface features or physiography.

The laboratory work consists of the study of maps, sections, and fossils, followed by work with physiographic models. There will be several excursions on Saturday afternoons in the spring.

Prerequisite, Geology I or Geology eI.

Text-book: Chamberlin & Salisbury, College Geology.

#### German

eA1-A2—Elementary course. 3 points. Mr. Heuser, and Dr. Porter-FIELD. Credit I, IV. Fee, \$15.

Sec. 1. 4.30-5.45 P.M., Tu. and Th., Room 402, Hamilton. Mr. HEUSER Sec. 2. 8.35-9.50 P.M., M. and W., Room 402, Hamilton. Dr. Porterfield

Prerequisite to eA2: eA1, eA3-4, or sA1 and sA2. For course eA1 no previous knowledge of German is required.

This course familiarizes the beginner with the common vocabulary and the fundamental grammatical facts of the language, so as to enable him to read easy German at sight. Reading forms part of the work from the beginning, together with grammar study, easy exercises in composition, and a considerable amount of colloquial practice in the phrases of everyday life. Although this course is intended for beginners it may be taken with profit by those who have some previous knowledge of the language but are deficient in grammar.

Text-books: Thomas, Practical German Grammar, 4th edition (Holt); Hervey, Supplementary Exercises to Thomas's Grammar, 4th edition (Holt); Guerber, Mürchen und Erzablungen (Heath).

Course eA2 completes the college entrance requirement in Elementary German.

eA3-A4—Elementary course. First half. 1½ points. Mr. M. G. BACH 9.30-10.45 A.M., S., Room 307, Hamilton. Credit I, IV. Fee, \$7.50.

Prerequisite to eA4: eA3 or sA1. For course eA3 no previous knowledge of German is required.

This course, continuing throughout the year, is equivalent to course eAr. The student may complete the requirement in Elementary German for college entrance or for a degree by taking eA2, eA5-A6, or (if specially proficient in eA3-A4) sA3.

eA5-A6—Elementary course. Second half. 1½ points. Mr. M. G. BACH 11-12.15, S., Room 307, Hamilton. Credit I, IV. Fee, \$7.50.

Prerequisite, eAr, eA3-A4, or sA1 and sA2.

This course, continuing throughout the year, is equivalent to course eA2.

eB1-B2—Intermediate course. 3 points. Mr. Schulze

4.30-5.45 P.M., Tu. and Th., Room 406, Hamilton. Credit I, IV. Fee, \$15.

Prerequisite, eA2, eA5-6, or sA3, or an equivalent.

This course is intended for students who have satisfied the college entrance requirement in Elementary German, or have taken course eA1-A2 or an equivalent. Course eB2 completes the requirement in Intermediate German for college entrance or for a degree.

The work of this course includes the reading (partly at sight) of about five hundred pages of moderately difficult prose and verse by standard modern and classical authors; grammatical instruction, beginning with a rapid review of the elements and embracing the fundamental principles of syntax and word-formation; exercises in composition and free reproduction, oral and written, with some colloquial practice. The texts studied will be selected with reference to variety of style and vocabulary and will include Lessing's Minna von Barnhelm, Heine's Harsreise, and Schiller's Wilhelm Tell.

Students will require at the beginning of this course, Eckstein's Der Besuch im Karzer and Wildenbruch's Das edle Blut, edited (in one vol.) by H. C. Sanborn (Ginn), and Thomas, Practical German Grammar (Holt).

eB3-B4—Shorter intermediate course. 2 points. Professor Braun 9-10.40 A.M., S., Room 408, Hamilton. Credit I, IV. Fee, \$10.

Prerequisite, as for course eB2.

This course is equivalent in hours to two-thirds of eB1-B2 and includes the more important work of the longer course, with a smaller amount of reading (about 350 pages) and of practice in writing and speaking. Students proficient in this course are able to pass the college entrance examination in Intermediate German. If supplemented by course e3-4 or s3-4, it will be accepted in satisfaction of the intermediate requirements for admission for a degree.

e3-4—Composition and oral practice. Intermediate course. I point. Professor Braun

II-II.50 A.M., S., Room 408, Hamilton. Credit I, IV. Fee, \$5.

This course aims to meet the demand for instruction looking toward a practical command of the German language. It is intended for students who possess an elementary reading knowledge (the equivalent of Course cA2 or cA6), but previous practice in oral expression is not regarded as a prerequisite. The course may be taken with advantage by students who are taking, or have taken, eB1-B2 or cB3-B4.

From the outset simple German will be employed, as far as possible, by in-

structor and student alike. The subjects pursued and the methods employed will depend in large measure upon individual needs. The conversation will be based upon easy German narrative prose, short poems, and so far as may be practicable, upon daily life and current events, and will be supplemented with frequent dictation exercises. The composition work will consist of translations into German and of original themes upon subjects discussed in class.

e5-6—Introduction to the classics. Selected works of Goethe, Schiller, and Lessing. 2 points. Professor Hervey (course e5) and Mr. Heuser (course e6).

9-10.40 A.M., S., Room 406, Hamilton. Credit I, IV. Fee, \$10.

Prerequisite, eB2, eB4, or an equivalent.

This course aims to make the student familiar with representative works of the classical period and the outlines of its history, and to increase the student's command of vocabulary and idiom, by means of supplementary sight reading and by interpretation of the text without the medium of translation.

The course will include the reading and study of two dramas of Lessing, Goethe, and Schiller, with brief discussion of other works in connection with assigned private reading.

Text-books required at the beginning: Lessing's *Emilia Galotti*, edited by Winkler (Heath); Rolleston's *Life of Lessing*, published in the "Great Writers" series (Walter Scott: London).

### [e11-12—Composition and oral practice. Advanced course. 2 points.

This course is intended to supplement the work of course e5-6, as e3-4, with which it alternates, supplements that of eB<sub>4</sub>-3. Not given in 1911-12; to be given in 1912-13.]

# Government (see Politics, p. 32)

## History

eAI—Europe in the middle ages; the chief political, economic, and intellectual achievements. Lectures, readings, and discussions. 3 points. Mr. Hall

8.35-9.50 P.M., Tu. and Th., Room 402, Hamilton. Credit I, IV. Fee \$15.

The central idea in this course will be the development of European civilization to the seventeenth century. Among the subjects treated will be the cultural contributions of antiquity, the organization of the Roman empire, feudalism, the rise and influence of the Christian Church, Mohammedanism and the Crusades, the development of national monarchy, mediæval culture and the so-called Renaissance, and the political and religious aspects of the Protestant movement.

Text-book: Robinson, History of Western Europe.

eA2—Modern and contemporary European history. Lectures, readings, and discussions. 3 points. Professor HAYES

8.35-9.50 P.M., Tu. and Th., Room 402, Hamilton. Credit I, IV. Fee \$15.

This course is designed as an introduction to current national and international problems. The principal topics will be monarchy by divine right, and the old régime in Europe, the intellectual achievements of the eighteenth century, the French Revolution with reference to political and economic changes, the work of Napoleon

inreforming France and in re-shaping the map of Europe, the Industrial Revolution, the development of Italian and German unity, the third French Republic, the rise of Russia, modern social problems, and European imperialism in Africa and the Orient.

Text-book: Robinson and Beard, The Development of Modern Europe.

e11a-12a-English history. 2 points. Mr. SAIT

4.30-5.30 P.M., Th., and 10-11 A.M., S., Room 202, Hamilton. Credit I, IV. Fee \$10.

The events of the Middle Ages will be passed over rapidly and connected with the political, economic, and religious circumstances of modern England. Particular attention will be given to constitutional development, colonial expansion, and the industrial revolution, with the problems which came in its train. The lectures will be supplemented with discussion in class.

Text-books: Cheyney, Short History of England; Beard, Introduction to the English Historians; and assigned reading in other books will be used as the basis of discussion in class.

e13-14—American history. 2 points. Dr. Schuyler 11-12.40 A.M., S., Room 406, Hamilton. Credit I, IV. Fee \$10.

Lecture-Study Course—A series of 30 lectures in two groups. 3 points each group. Fee \$15.

If this series of lectures is taken with conference class, credit I, II, IV.

1.s.A—The Protestant revolt. Fifteen lectures. Professor Robinson Lectures 4.10-5.00 P.M., Conference 5.00-5.50 P.M., M. Room 401, Kent. Fee \$15.

The course will deal with the causes, progress, and effects of the disruption of the mediæval church in the sixteenth century, the reforms introduced by the Protestants, and the relation of their ideas to the general social and scientific progress of Western Europe.

Text-book: Lindsay's History of the Reformation, vol. i., is the manual best suited to the course.

1.s.D—Political history of Europe in the nineteenth century. Fifteen lectures beginning in February. 3 points. Professor Shotwell

Lectures 4.10-5 P.M., Conference 5.00-5.50 P.M., M., Room 401, Kent. Fee \$15.

# Italian (see Romance Languages, p. 32)

#### Latin

eAr—Collegiate Latin. Terence, Phormio; Livy (Books xxi-xxii). Dr. Sturtevant. 3 points.

7.20-8.35 P.M., M., and W. Room 509, Hamilton. Credit I, IV. Fee \$15.

eA2—Collegiate Latin. Horace, Odes and Epodes; Catullus. Dr. STURTEVANT. 3 points.

7.20-8.35 P.M., M., and W. Room 509, Hamilton. Credit I, IV. Fee \$15.

#### eXI-Elementary Latin. Miss WYE

7.20-8.50 P.M., Tu. and Th. Room 509, Hamilton. Credit IV. Fee \$20.

This course requires no previous knowledge of Latin. Its aim is to prepare the student to read intelligently Latin of the average difficulty of Cæsar's Bellum Gallicum. To this end there will be constant drill in the use of forms in oral and written work, study of the more common syntactical principles, and careful training in sight translation.

Text-book: Scudder, First Latin Reader (Allyn and Bacon).

# eX2—Caesar, Nepos, and prose composition. Miss Wye 7.20-8.50 P.M., Tu. and Th. 509 Hamilton. Credit IV. Fee, 20.

The amount and scope of the reading in this course and in the supplementary courses eY1-2 will follow closely the recent recommendations of the American Philological Association. Great stress will be laid upon sight translation, translation at hearing, systematic study of vocabulary, free composition, and oral work.

Text-books: Flagg, Lives of Nepos (Sanborn); Mather, Cæsar, Gallic and Civil Wars (American Book Co.); Barss, Book I. (Heath); Lodge, Vocabulary of High School Latin (Teachers College); Gildersleeve, Latin Grammar.

# eY1-Ovid and Vergil. Miss WYE

7.20-8.50 P.M., M. and W. Room 511, Hamilton. Credit IV. Fee, \$20.

The aim of this course is to introduce the student to the study of Latin poetry not merely by translation, but by careful attention to the form of the verse. In addition, therefore, to the regular written exercises in scansion as much metrical reading as possible will be done in class and from time to time the recitation from memory of selected passages will be required.

Text-books: Gleason, A Term of Ovid; Harper and Miller, Vergil's Æneid (American Book Company).

### eY2-Cicero and Sallust. Miss WyE

7.20-8.35 P.M., M. and W. Room 511, Hamilton. Credit IV if taken in conjunction with eY4 Fee, \$20.

In this course the orations for the Manilian Law and for Archias will be read together with the account of the Catilinarian conspiracy as it appears in Sallust's Catiline and in the Catilinarian orations.

Text-books: von Minckwitz, Cicero; Merivale, Sallust (MacMillan).

# eY4-Latin prose composition. Miss WyE.

8.50-9.40 P.M., M. and W. Room 511, Hamilton. Credit IV if taken in conjunction with eY2. Fee, \$10.

This course is designed to give a thorough review of the material which is ordinarily included in the High School course in Prose Composition.

Text-books: Barss, Writing Latin, Book II; Gildersleeve, Latin Grammar (Heath).

Note.—If there is a sufficient registration, day sections will also be formed in Vergil, Cicero, and prose composition.

#### Mathematics

eA1-Trigonometry and algebra. 3 points. Mr. SICELOFF

7.20-8.35 P.M., M. and W. Room 202, Hamilton. Credit I, IV. Fee, \$15.

The subject matter of this course includes quadratic equations, variation trigonometric functions, circular measure, relations between the functions, functions of several angles, inverse functions, trigonometric equations, logarithms, solution of triangles, complex numbers, and the theory of algebraic equations so far as is necessary for the development and use of Horner's method for the solution of numerical equations.

Elementary algebra through the quadratic equation is presupposed.

Equivalent to Mathematics AI or A4 in the Announcement of Columbia College.

eA2-Solid geometry. 3 points. Mr. SICELOFF.

7.20-8.35 P.M., M. and W., Room 202, Hamilton. Credit I, IV. Fee, \$15.

In addition to the usual theorems on lines, planes and solids, the geometry of the sphere, and the development of space intuition, this course lays special stress upon the purely logical side of the subject and the nature of mathematical proof. Plane geometry is presupposed.

The above course is equivalent to Mathematics A2 in the Announcement of Columbia College.

e5-Algebra. 3 points. Dr. REDDICK

7.20-8.35 P.M., M. and W., Room 203, Hamilton. Credit I, IV, V. Fee, \$15.

This course is designed for students who desire to continue with such more advanced topics as permutations and combinations, determinants with applications to the solutions of linear equations, complex numbers, theory of equations with reference to the solution of numerical equations of higher degree, undetermined coefficients involving the use of finite series, and partial fractions

Acquaintance with the elements, including the quadratic equation, is presuposed.

Equivalent to Mathematics 5 or 6 in the Announcement of Columbia College, and to Mathematics 1 or 2 in the Announcement of the Schools of Mines, Engineering and Chemistry.

e3-Analytical geometry. 3 points. Professor Grove

7.20-8.35 P.M., M. and W. Room 516, Hamilton. Credit I, IV, V. Fee, \$15.

Introduction to algebraic geometry, dealing with such topics as coordinate systems, transformations, loci and their equations, the straight line, circle, parabola, ellipse, hyperbola, the geometric interpretation of the general equation of second degree, and the elements of three-dimensional geometry.

eA1 and eA2 or their equivalents are presupposed.

Equivalent to Mathematics 3 or 4 in the Announcement of Columbia College, and of the Schools of Mines, Engineering, and Chemistry.

e15-16-Calculus. 3 points. Mr. WILSON

7.20-8.35 P.M., Tu., Th., Room 202, Hamilton. Credit I, IV, V. Fee, \$15.

The notions and operations of function, differentiation, and integration, are presented with applications to geometry, physics, and mechanics.

e3 or its equivalent is presupposed.

Equivalent to Mathematics 15-16 in the Announcement of Columbia College.

## eX1-X2-Algebra, elementary course. Mr. SIMPSON

7.20-8.10 P.M. M. and W., Room 214, Hamilton. Fee, \$15.

This course includes the fundamental operations, factoring, fractions, ratio and proportion, quadratics, binominal theorem (simple forms), progressions, and graphical methods.

Text-books: Wentworth's New School Algebra.

## eY1-Y2-Plane geometry. Mr. SIMPSON

8.10-9.00 P.M., M. and W., Room 214, Hamilton. Fee, \$15.

The first five books of Wentworth's Geometry, including rectilinear figures, the circle, proportion, areas of polygons, regular polygons and circles.

Text-books: Wentworth's Geometry (Wentworth's and Smith's revision).

## Mechanical Drawing

ei-2—Mechanical drafting.\* I hour lecture and 5 hours draftingroom work per week. 2½ points. Mr. Harrington

7.20-10 P.M., M. and W., Room 601, Engineering. Credit I, IV, V. Fee, \$12.50.

This course presupposes a fair ability in freehand drawing, and is the equivalent of the courses given to students of the first year in the Schools of Mines, Engineering, and Chemistry.

The topics covered will be: the use of instruments; geometrical drafting; lettering orthographic projection; topographical drafting; elementary working drawings.

e3-4—Descriptive geometry.\* 2 hours lectures. 2 points. Mr. HAR-RINGTON

6-6.50 P.M., M. and W., Room 601, Engineering. Credit I, IV, V. Fee, \$10.

This course will cover elementary problems relating to the point, right line, and plane; generation and classification of lines and surfaces; tangent planes to surfaces of single and double curvature; intersection of surfaces by planes; development of single curved surfaces; intersection of single curved surfaces.

e5—Graphics.\* I hour lecture and 5 hours drafting-room work per week. 3 points. First half-year. Mr. Harrington

7.20-10 P.M., M. and W., Room 601, Engineering. Credit V. Fee, \$15.

This course treats of the elements of shades and shadows and perspective. The solution of 35 problems in the shades and shadows of lines, planes, and groups of solids, including the niche and torus, gives a fair working knowledge of this subject, while a sufficient number of plates are given in perspective to illustrate in detail all of the principles involved.

Prerequisites—Elements of mechanical drafting and descriptive geometry.

e8—Specialized engineering drafting.\* (a) Structural drafting. (b) Machine drafting. I hour lecture and 5 hours drafting-room work per week. 3 points. Second half-year. Mr. Harrington

7.20-10 P.M., M. and W., Room 601, Engineering. Credit V. Fee, \$15.

This course includes methods used in framing and detailing in structural work; mine timbering; detailed and assembled drawings of ore-cars and skips; working drawings of machine details; tracings, etc., according to the course selected by the student.

Prerequisites—Elements of mechanical drafting and descriptive geometry.

<sup>\*</sup> Students will be required to furnish their own drafting instruments and materials.

## Money and Banking (see Commerce, p. 15)

#### Music

eX1-X2-Vocal training for service in choirs. Mr. NICHOLS

4 P.M., Tu. and F. Room 608 Mines. Credit I for Columbia College.

Two hours instruction and laboratory work consisting of singing at chapel services. 1½ points each half year. Fee, \$7.50.

This course is designed for college students who desire to begin the cultivation of the voice during their undergraduate life. It is intended primarily for those desiring to become members of the choir of St. Paul's Chapel, the daily service and Thursday rehearsals being counted as laboratory work. Correct tone production, proper breath control, diction, a natural and artistic delivery, correction of throatiness and other vocal faults, and the study of classical and modern lyrics will be the aim of this course, each student in the class receiving individual instruction. Students having taken this course will be eligible to the salaried positions in the Chapel choir the following year.

#### e33-34-University Chorus. Mr. HALL

8.30-IO P.M., Wednesday. Earl Hall. Fee for University students, \$5.00 for the year. One point credit in Columbia College for the year if taken in conjunction with another course in music. At Teachers College, 2 points credit.

For the practice and performance of various forms of choral art. It is expected that two large concerts will be given during the year, when the University Chorus will join with those of Brooklyn (Brooklyn Oratorio Society), Flushing, New Rochelle, and Yonkers, forming a large festival chorus. Students will be allowed to become members of this chorus only after application to the Conductor, Mr. Hall, and after a voice trial.

# eZ—Sight-reading and accompanying for key-board instruments. 2 points. Mr. LAMOND

4.10-5.50 P.M., Th. Room 608, Mines. Credit Ia, IV. Fee, \$10. Studio fee, which includes necessary apparatus and music, \$5.

A practical course for gaining a fluent command of the key-board. The system will be directed towards enabling the student to transmit automatically written musical signs into muscular actions, or playing movements. It will also include a course in finger gymnastics. Half-an-hour's daily practice will be required. The course will be divided into three parts:

Part I. 10 weeks. Demonstration of the system of reading music at first sight. Application of this to practical music. Part II. Practical illustrations in musical literature, from easy works to difficult. Students will be required to perform these examples. Part III. 10 weeks. Rhythm, accompanying, and improvising.

# Optometry

A special circular of the courses in practical optics may be obtained from the Secretary of the University.

## Philosophy

eAI—Principles of science: methods, deductive and inductive logic. Lectures, recitations, and individual consultations with the instructor. 3 points. Dr. Brown

8.35-9.50 P.M., Tu. and Th., Room 406, Hamilton. Credit I, IV. Fee, \$15. This course aims at drilling the student in the forms of accurate thinking, and at developing skill in detecting errors in reasoning. The principles of inductive and deductive logic will be taught and applied, both critically and constructively, to a large number of arguments.

This course is the same as Philosophy AI in Columbia College.

eA2—Principles of science, concepts and problems of philosophy. Lectures, recitations, and individual consultations with the instructor. 3 points. Dr. Brown

8.35-9.50 P.M., Tu. and Th., Room 406, Hamilton. Credit I, IV. Fee, \$15.

This course is intended to acquaint the student with the fundamental concepts upon which philosophy is based and to show him how concepts are related and organized into the systematic points of view that characterize the great movements of current philosophical thought.

This course is the same as Philosophy A2 in Columbia College.

er61-162—History of philosophy. Lectures, discussions, and essays. 2 points. Dr. Cooley

4.20-6.00 P.M., M., Room 309, Hamilton. Credit I, II, IV. Fee, \$10. In the first half-year the genesis of the fundamental problems of thought, ethics, and religion and the treatment they received from ancient and mediaval thinkers will be traced. The second half-year will be devoted to the consideration of these problems from the point of view of the modern world.

# Physical Education

eX1-X2—Gymnastics. Mr. FETTE

8.30-9.20 P.M., M., Th., S. Gymnasium fee, \$3.50. Fee for instruction, \$10.

This course comprises free exercises with and without hand apparatus and chest-weight exercises; simple work on gymnastic apparatus, such as horizontal ladder, horizontal bar, ropes, buck, horse, etc., gymnasium games; swimming.

eY1-Y2-Swimming. Mr. KENNEDY

Section 1.—M. 8.30-9.00 P.M., or 9.00-9.30

Section 2.—Th. 8.30-9.00 P.M., or 9.00-9.30

Section 3.—S. 8.30-9.00 P.M., or 9.00-9.30

Gymnasium fee, \$3.50. Fee for instruction, \$10.

Students may receive instruction on either Monday, Thursday or Saturday and will have the privilege of using the swimming pool on the remaining evenings.

eZ1-Z2-Boxing. Mr. WEEMAN

Individual instruction. Fifteen half-hour lessons, one lesson each week.

Section 1.—M. 8, 8.30, 9 P.M.

Section 2.—Th. 8, 8.30, 9 P.M.

Section 3. -S. 8, 8.30, 9 P.M.

Gymnasium fee, \$3.50. Fee for instruction, \$20.

## Physics

eA1-A2—Elementary course in general physics. 3 hours lectures and recitations, with 2 hours laboratory work. 4 points. Mr. FARWELL

7.20-9.50 P.M., M. and W., Room 301, Fayerweather. Credit I, IV. Fee, \$20.

An introductory course in physics for students who wish to become acquainted with the results, methods, and spirit of the science, whether they intend to pursue its study further, or wish an elementary knowledge of physics only as a matter of general interest.

#### Politics

e1-2-American government. 3 points. Mr. Ross

4.15-5.30 P.M., M. and W. Room 402, Hamilton. Credit I. Fee, \$15.

This course will deal with the government of New York City, New York State, and the nation. Emphasis will be laid upon the actual operation of governments, the part played by national parties, etc. Some attention will be paid to the teaching of civics, the organization of civic clubs, the "school city," self-government, etc.

## Psychology

eI-2—Elements of psychology. Lectures, demonstrations, discussions, and recitations. 3 points. Dr. Hollingworth

4.30-5.45 P.M., Tu. and Th., Room 407, Schermerhorn. Credit I, IV. Fee, \$15.

This course is designed to give the student a knowledge of the essential facts and fundamental laws of mind. It serves as an introduction to the more advanced courses in psychology and philosophy, and also meets the requirements of boards of education for a course in general or pure psychology. The first part of the course deals with the nervous system and sensation, the second part with the higher mental processes.

e141—Applied psychology. Lectures, demonstrations, and discussions. 2 points. Dr. Strong

7.20-8.50 P.M., Th., Room 407, Schermerhorn. Credit I, II, IV. Fee, \$10.

Experimental psychology will be reviewed with special application to the professions of the lawyer, physician, minister, educator, engineer, and business man, treating such subjects as the senses, attention, memory, judgment, suggestion, habit, efficiency, heredity, environment, etc.

e142—Psychology of advertising. Lectures, demonstration, and discussions. 2 points. Dr. Strong

7.20-8.50 P.M., Th., Room 407, Schermerhorn. Credit I, II, IV. Fee, \$10.

Such aspects of psychology as are essential to a thorough understanding of advertising will be considered. Special attention will be devoted to individual, sex, and class differences and to methods of "keying" and testing beforehand the relative "pulling power" of advertisements. Illustrated by the examination of current advertisements.

#### ROMANCE LANGUAGES

#### French

eAI-A2—Elementary course. 3 points. Mr. Muller, Mr. Imbert. Credit I, IV. Fee, \$15.

SEC. I. 4.30-5.45 P.M., Tu. and Th., Room 303, Hamilton.

SEC. 2. 7.20-8.35 P.M., M., W., Room 303, Hamilton.

This course is intended for students who have no previous knowledge of French. The instruction is planned so as to enable students to read at sight ordinary French prose. Reading will constitute a large part of the work of the course. In connection with the reading, a careful study of the essentials of grammar and syntax will be taken up, together with simple composition. Attention will be paid to correct pronunciation and as far as possible to the understanding of simple spoken French.

Text-books: Thieme and Effinger, A French Grammar; Grandgent, Materials for French Composition, Part III; Douay, An Elementary French Reader; Daudet, Trois Contes choisis; Laboulaye, Contes bleus; Vigny, Le Cachet rouge.

Equivalent to Course A1-A2 as given in Columbia College.

eA3-A4—Elementary course. First half. 11/2 points. Mr. FARNS-WORTH

11-12.15, S. Thirty sessions. Room 303, Hamilton. Credit I, IV. Fee, \$7.50.

This course will enable the student to master the elements of French Grammar, the regular verbs, simple idioms, a few of the irregular verbs, and enough of the subjunctive to make possible the reading of easy French. Some attention will be paid as far as possible to the training of the ear in understanding spoken French.

Text-books: Thième and Effinger, A French Grammar; Douay, An Elementary French Reader.

Equivalent to Course eAI.

Credit I, IV. Fee. \$15.

eA5-A6-Elementary course. Second half. 11/2 points. Mr. FARNS-WORTH

9.30-10.45 A.M., S. Thirty sessions. Room 303, Hamilton. Credit I, IV. Fee, \$7.50.

This course is supplementary to eA<sub>3</sub>-4 and is given on Saturday throughout the year. It is equivalent to eA<sub>2</sub>.

eB1-B2—Intermediate course—Grammar, reading, and composition. 3 points. Professor Fontaine, Mr. Imbert.

SEC. I. 4.30-5.45 P.M., M. and W., Room 303, Hamilton.

SEC. 2. 7.20-8.35 P.M., Tu. and Th. Room 303, Hamilton.

The work will consist: first, of the study of French syntax; second, of the reading and translation of French prose; third of translation from English into French; fourth, of outside reading. As far as practicable, French will be the language of the class-room.

Text-books: Fraser and Squair, French Grammar; Voltaire, Zadig; Lesage, Gil Blas; Sandeau, Mademoiselle de la Seiglière; Balzac, Le Curé de Tours; La Fontaine, Fifty Fables; Molière, Le Bourgeois Gentilhomme; L'Avare.

Outside reading: Thiers, Bonaparte en Egypte.

Equivalent to Course B1-B2 as given in Columbia College.

e1-2—General introduction to the study of French literature. Composition, readings, lectures. 3 points. Professor LOISEAUX

4.30-5.45 P.M., Tu. and Th., Room 307, Hamilton. Credit I, IV. Fee \$15.

This course is designed both to complete the student's elementary training in the French language and to give him some knowledge of the history of French literature since 1600, and its more important authors.

Text-books: Pellissier, Précis d'Histoire de la Litterature Française; Corneille Le Cid; Molière, Les Précieuses Ridicules and Tartuffe; Racine, Phèdre; Bossuet, Oraisons funebres; Pascal, Les Provinciales; Voltaire, Prose (extracts, Cohn and Woodward edition); Marivaux, Le Jeu de l'Amour et du Hasard; Oxford, book of French verse; Victor Hugo, Hernani, Ruy Blas; Musset, Trois comédies; Rostand, Cyrano de Bergerac.

Outside reading: First half-year, Corneille, Horace; Molière, Les Femmes savantes, le Misanthrope; Racine, Iphigénie or Athalie. Second half-year, one of the following works: Balzac, Eugénie Grandet; Taine, L'Ancien régime; Renan, Souvenirs d'Enfance et de Jeunesse; Hugo, Quatrevingt-treize.

Equivalent to Course 1-2 as given in Columbia College.

e3-4—Conversation and composition based upon the history of France. 3 points. Mr. FORTIER.

4.30-5.45 P.M., M. and W. Room 307, Hamilton. Credit, I, IV. Fee, \$15.

This course conducted entirely in French is intended to give the student real proficiency in speaking and writing French. The speaking and composition will be based upon passages from the great French historians, selected for reading. Equivalent to course 3-4 as given in Columbia College.

#### Italian

e1-2—Elementary course. 3 points. Professor Livingston 4.30-5.45 P.M., Tu. and Th. Room 408, Hamilton. Credit I, IV. Fee, \$15.

The aim of this course is to impart an accurate reading knowledge of modern Italian, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in course 2 special attention will be paid to Italian composition.

#### Spanish

e1-2-Elementary course. 3 points. Mr. IMBERT

4.30-5.45 P.M., Tu., and 9-10.15 A.M. S. Room 309, Hamilton. Credit I, IV. Fee, \$15.

The aim of this course is to impart an accurate reading knowledge of modern Spanish, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in Course 2 special attention will be paid to Spanish composition.

Text-books: Loiseaux, Spanish Grammar, Elementary Spanish Reader, Spanish Composition; P. A. de Alarcon, El Capitan Veneno; Galdos, Marianela, Dona Perfecta; Carrión y Aza, Záragueta.

Outside reading: Valera, El Pojaro Verde; Lesage, Gil Blas (Padre Isla's translation.)

Equivalent to Course 1-2 as given in Columbia College.

## e3-4-Advanced course. 3 points. Mr. IMBERT

4.30-5.45 P.M., Th., and 10.30-11.45 A.M., S. Room 309, Hamilton. Credit I, IV. Fee, \$15.

Second year course. A continuation of course e1-2, in which emphasis will be placed on rapid reading of modern prose, on advanced composition and conversation.

Text-books: Hills and Ford, A Spanish Grammar; Crawford's Spanish Composition; Valdes, José; Galdós, Marianela; Valera, El Comendador Mendoza. There will be some outside reading in connection with the course.

Equivalent to course 3-4 as given in Columbia College.

## Stenography and Typewriting

## er-Stenography and typewriting. Mr. BEYGRAU. Earl Hall

Section 1.—6-6.50 P.M. (typewriting); 7.20-9.00 P.M.—(stenography) Tu. and S. Fee, \$20 for the half-year

Section 2.—4-6 P.M., Tu. and Th. (typewriting); 4-6 P.M., M. and W.—(stenography). Fee, \$30 for the half-year.

Each section is limited to twenty students.

## Stenography

This course is designed for men and women who desire to become secretaries or shorthand and typewriting teachers.

A thorough presentation of the Isaac Pitman system will be given. The successful completion of the fundamental principles of shorthand will be followed by a presentation of phrases, contractions, commercial and legal work. Those who acquire proficiency in shorthand and who are able to speak and write German will have an opportunity to adopt this system of shorthand to the German language.

Text-book: Course in Isaac Pitman Shorthand.

Outside reading: The instructor will provide the students with suitable literature as the course progresses.

# Typewriting

Scientific typewriting. Touch operating as practised by rapid operators. Text-book: A Practical Course in Touch Typewriting by Chas. E. Smith. Note: Typewriting machines will be provided for the use of the students.

Surveying (see Engineering, p. 18)

#### EVENING COURSES IN BROOKLYN

Columbia University will offer during the academic year 1911–1912 evening courses of instruction for men in the educational department of the Central Young Men's Christian Association, Fulton and Bond Streets, Brooklyn. These will be given in the evening. They will be open to all students fitted to undertake the courses, and, for those who are matriculated in accordance with the rules of the faculties of Columbia College and Teachers College or the professional schools, will count toward the degrees. Students may consult Mr. MILTON J. DAVIES, A.B., at the Y. M. C. A. The points and fees are stated for the half-year.

## English

**eX**—College entrance English. Books for reading. Reading of texts, themes, conferences, tests, lectures, discussions. Mr. Hale

7.20-8.35 P.M., M. and W. Fee, \$15.

This course is designed to aid in preparing for English a as required for admission to College and to the Schools of Mines, Engineering, and Chemistry. Each week certain texts will be read and themes prepared. The successful completion of this course will count toward the removal of entrance conditions in English.

eY—College entrance English. Books for study. Study of texts, themes, tests, lectures, discussions. Mr. Hale

7.20-8.35 P.M., F. Fee, \$10.

This course is designed to aid in preparing for English b as required for admission to College and to the Schools of Mines, Engineering, and Chemistry. The successful completion of this course will count toward the removal of entrance conditions in English.

eAr-A2—English composition. Lectures, themes, and conferences. 3 points. Mr. Hale

8.35-9.50. M. and W. Credit I, IV. Fee, \$15.

This course corresponds to English A in Columbia College.

#### French

eA<sub>I</sub>-A<sub>2</sub>-Elementary course. 3 points. Mr. Farnsworth 7.20-8.35 p.m., M. and W. Credit I, IV. Fee, \$15.

This course is intended for students who have no previous knowledge of French. The instruction is planned so as to enable students to read at sight ordinary French prose. Reading will constitute a large part of the work of the course. In connection with the reading, a careful study of the essentials of grammar and syntax will be taken up, together with simple composition. Attention will be paid to correct pronunciation and as far as possible to the understanding of simple spoken French.

Text-books: Thième and Effinger, A French Grammar; Grandgent, Materials for French Composition, Part III; Douay, An Elementary French Reader; Daudet, Trois Contes choisis; Laboulaye, Contes bleus; Vigney, Le Cachet rouge.

Equivalent to Course A1-A2 as given in Columbia College.

#### German

eAr-A2—Elementary course. 3 points. Mr. M. G. BACH 7.20-8.35 P.M., Tu. and Th. Credit I, IV. Fee, \$15.

For course eAr no previous knowledge of German is required. Prerequisite

to eA2: eA1, eA3-4 or sA1 and sA2 (Summer Session courses).

This course familiarizes the beginner with the common vocabulary and the fundamental grammatical facts of the language, so as to enable him to read easy German at sight. Reading forms part of the work from the beginning, together with grammar study, easy exercises in composition, and a considerable amount of colloquial practice in the phrases of every-day life. Although this course is intended for beginners it may be taken with profit by those who have some previous knowledge of the language but are deficient in grammar.

Text-books: Thomas, Practical German Grammar, 4th edition (Holt); Hervey, Supplementary Exercises to Thomas's Grammar, 4th edition (Holt); Guerber,

Märchen und Erzablungen (Heath).

Course eA2 completes the College Entrance requirement in Elementary German.

eB<sub>I</sub>-B<sub>2</sub>—Intermediate course. 3 points. Mr. M. G. Bach 8.35-9.50 p.m., Tu. and Th. Credit I, IV. Fee, \$15.

Prerequisite eA2, eA5-6, or sA3.

This course is intended for students who have satisfied the College Entrance requirement in Elementary German, or have taken course eAI-A2 or an equivalent. Course eB2 completes the requirement in Intermediate German for college entrance, or for a degree.

The work of this course includes the reading (partly at sight) of about five hundred pages of moderately difficult prose and verse by standard modern and classical authors; grammatical instruction, beginning with a rapid review of the elements and embracing the fundamental principles of syntax and word-formation; exercises in composition and free production, oral and written, with some colloquial practice. The texts studied will be selected with reference to variety of style and vocabulary, and will include Lessing's Minna von Barnhelm, Heine's Harzreise, and Schiller's Wilhelm Tell.

Students will require at the beginning of this course Eckstein's Der Besuch im Karzer and Wildenbruch's Das edle Blut, edited (in one vol.) by H. C. Sanborn (Ginn), and Thomas, Practical German Grammar (Holt).

# History and Government

eX—English History. 2 points. Mr. Ross 7.30-8.20 P.M., Tu. and Th. Fee, \$10.

This course corresponds to the English History as required for admission to college. It is given with due reference to sociological and political development.

eY—American history and government. 2 points. Mr. Ross 8.20-9.10 P.M., Tu. and Th. Fee, \$10.

This course corresponds to the American History as required for admission to college. It includes not only history but also a study of elementary civil government.

#### Mathematics

eX—Algebra, elementary course. 2 points. Mr. Brett 7.30-8.20, P.M., M. and W. Fee \$10.

eY—Plane geometry. 2 points. Mr. Brett 8.20-9.10 p.m., M. and W. Fee, \$10. eA1—Trigonometry and algebra. 3 points. Mr. Brett 7.30-8.45 p.m., Tu. and F. Credit I, IV. Fee, \$15.

The subject-matter of this course includes quadratic equations, variations, trigonometric functions, circular measure, relations between the functions, functions of several angles, inverse functions, trigonometric equations, logarithms, solution of triangles, complex numbers and the theory of algebraic equations so far as is necessary for the development and use of Horner's method for the solution of numerical equation is presupposed.

Equivalent to Mathematics AI or A4 in the Announcement of Columbia College.

eA2—Solid geometry. 3 points. Mr. Brett 7.30-8.45 P.M., Tu. and F. Credit I, IV. Fee, \$15.

In addition to the usual theorems on lines, planes and solids, the geometry of the sphere, and the development of space intuition, this course lays special stress upon the purely logical side of the subject and the nature of mathematical proof.

Plane geometry is presupposed.

Equivalent to Mathematics A2 in the Announcement of Columbia College.

## Psychology

e141—Psychology of advertising. Lectures, demonstration, and discussions. 2 points. Dr. Strong. Credit I, II, IV. Fee, \$10. 7.20-8.50. F. First half-year.

Those aspects of psychology will be considered as are essential to a thorough understanding of advertising. Special attention will be devoted to individual, sex, and class differences and to methods of "keying" and testing beforehand the relative "pulling power" of advertisements. Illustrated by the examination of current advertisements.

#### Spanish

eAI-A2—Elementary course. 3 points. Mr. FARNSWORTH 8.35-9.50 P.M., M. and W. Credit I, IV. Fee, \$15.

The aim of this course is to impart an accurate reading knowledge of modern Spanish, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in Course 2 special attention will be paid to Spanish composition.

Text-books: Loiseaux, Spanish Grammar, Elementary Spanish Reader, Spanish Composition; P. A. de Alarcon, El Capitan Veneno; Galdos, Marianela, Dona Perfecta; Carrion y Aza, Zaragueta.

Outside reading: Valera, El Pojaro Verde; Lesage Gil Blas (Padre Isla's translation).

Equivalent to Course 1-2 as given in Columbia College.

#### COURSES IN NEWARK

Columbia University will offer for both men and women during the academic year 1911–1912 courses of instruction at 33 East Park Street, Newark, N. J. These will be given in the evening, the late afternoon, and on Saturday. They will be open to all qualified students, and, for those who are matriculated in accordance with the rules of the faculties of Columbia College, Barnard College, or the professional schools, will count toward the degrees. Students may consult Mr. RICHARD D. CURRIER, Assistant to the Director, 33 East Park Street.

The points and fees are stated for the half-year.

#### Education

e—Hygiene of the schoolroom. I point. Miss Whyte 4-5 P.M., W. Credit IV. Fee, \$5.

Conversation of vital resources through the economical use of the child's energy in adapting the environment to him and him to the environment.

Topics involved: (1) kinds of materials and the method of their use—building, room, furniture, ventilation, heating apparatus, etc. (2) the learning process; its economy illustrated in the hygiene of spelling, writing, etc., memorizing, judging. (3) pathological conditions; preventive and curative and alleviative measures. Abnormalities: fatigue, malnutrition, nervousness, chorea, stuttering, stammering, eye trouble, nose and throat difficulties, neurasthenia, hysteria, and dental sanitation.

## English

eW—English grammar and composition. Business English. Mr. PIFER 8.45-9.35 P.M., M. and W. Fee, \$10.

This course is intended for mature students who feel the need of instruction in the elementary conventions of English expression.

eAI-A2—English composition. Lectures, themes and conferences. 3 points. Mr. PIFER

7.20-8.35 P.M., M. and W. Credit I, IV. Fee, \$15.

This course corresponds to English A in Columbia College.

e59a-60a—The literature of the English short story. I point. Miss BOLLERT

4-5 P.M., Th. Credit IV. Fee, \$5.

The object of this course is to consider the characteristics of the modern short story as to I. Idea or Motive. II. Treatment—romantic, realistic, impressionistic. III. Structure. (1) length, (2) unity, (3) selection and concentration. IV. What constitutes a good plot—simplicity, plausibility, originality, climax, interest. V. Dialogue. VI. Characters. VII. Setting—color, atmosphere.

It will trace the evolution of the short story from the earliest unwritten forms in the myth, legend, beast-tale, fable, fairy tale, through the mediæval collections of the Gesta Romanorum, Il Decamerone, Il Pecerone, Novella, Fabliau; the older English collections, the Morte d'Arthur, Palace of Pleasure; the Essay short story

(The Sir Roger de Coverley Papers); with special study of modern writers and specimens of their work—Irving, Rip Van Winkle; Hawthorne, Elhan Brand; Poe, Cask of Amontillado; Bret Harte, Luck of Roaring Camp; Maupassant, The Necklace; Daudet, The Siege of Berlin; Turgeneff, A Lear of the Steppe; Stevenson, Markheim; Aldrich, Marjorie Daw; Stockton, The Lady or the Tiger; Henry James, The Madonna of the Future; Kipling, Wee Willie Winkie.

#### French

eAI-A2—Elementary course. 3 points. Mr. MILWITZKY 7.20-8.35 P.M., M. and W. Credit I, IV. Fee, \$15.

This course is intended for students who have no previous knowledge of French.

The instruction is planned so as to enable students to read at sight ordinary French prose. Reading will constitute a large part of the work of the course. In connection with the reading, a careful study of the essentials of grammar and syntax will be taken up, together with simple composition. Attention will be paid to correct pronunciation and as far as possible to the understanding of simple spoken French.

Text-books: Thième and Effinger, A French Grammar; Grandgent, Materials for French Composition, Part III; Douay, An Elementary French Reader; Daudet, Trois Contes choisis; Laboulaye, Contes bleus; Vigny, Le Cachet rouge.

Equivalent to Course A1-A2 as given in Columbia College.

eBi-B2—Intermediate course, grammar, reading and composition. 3 points. Mr. Milwitzky. If called for by ten students. 8.35-9.50 P.M., Tu. and Th. Credit I, IV. Fee, \$15.

This work will consist: first, of the study of French syntax; second, the reading and translation of French prose; third, of translation from English into French; fourth, of outside reading. As far as practicable, French will be the language of the class-room.

Text-books: Fraser and Squair, French Grammar; Voltaire, Zadig; Lesage, Gil Blas; Sandeau, Mademoiselle de la Seiglière; Balzac, Le Curé de Tours; La Fontaine, Fifty Fables; Molière, Le Bourgeois Gentilhomme; L'Avare. Outside reading: Thiers Bonaparte en Egypte.

Equivalent to Course B1-B2 as given in Columbia College.

## History and Government

eY—American history and government. Mr. Shultz 7.30-9.10 P.M., F. Fee, \$10.

This course will deal with American history in connection with the government of the city, state, and nation. Emphasis will be laid upon the actual operations of government, the part played by national parties, etc.

#### Mathematics

eX—Algebra, elementary course. Mr. Nowlan 7.20-8.10 P.M., Tu. and Th. First half-year. Fee, \$10.

To cover the college entrance requirements including (1) the four fundamental operations for rational expressions, and topics as lowest common multiple, ratio, and proportion, linear equations, radicals, fractions and negative exponents; (2) quadratic equations, arithmetic and geometric progressions, the binomial theorem, and the use of graphical methods.

A course in elementary algebra will be given also in the second half-year if ten or more students register. It is designed for those who find it more convenient to do the work in the second half-year.

## eY-Plane geometry. Mr. Nowlan

7.20-8.10 P.M., Tu. and Th. Second half-year. Fee, \$10.

The usual theorems and constructions of good text-books, including loci mensuration of lines and plane surfaces. Stress will be laid upon the solution of numerous original exercises.

A course in plane geometry will also be given in the first half-year if ten or more students register. It is designed for those who find it more convenient to do the work in the first half-year.

# eAI—Trigonometry and algebra. 3 points. Mr. Nowlan 8.10-9.25 P.M., Tu. and Th. Credit I, IV. Fee, \$15.

The subject-matter of this course includes quadratic equations, variations, trigonometric functions, circular measure, relations between the functions, functions of several angles, inverse functions, trigonometric equations, logarithms solution of triangles, complex numbers and the theory of algebraic equations so far as is necessary for the development and use of Horner's method for the solution of numerical equations.

Elementary algebra through the quadratic equation is presupposed.

Equivalent to Mathematics AI or A4 in the Announcement of Columbia College.

## eA2—Solid geometry. 3 points. Mr. Nowlan 8.10-9.25 P.M., Tu. and Th. Credit I, IV. Fee, \$15.

In addition to the usual theorems on lines, planes and solids, the geometry of the sphere, and the development of space intuition, this course lays special stress upon the purely logical side of the subject and the nature of mathematical proof.

Plane geometry is presupposed.

Equivalent to Mathematics A2 in the Announcement of Columbia College.

## Spanish.

# eAI-A2—Elementary course. 3 points. Mr. MILWITZKY 8.35-9.50 P.M., M. and W. Credit I, IV. Fee, \$15.

The aim of this course is to impart an accurate reading knowledge of modern Spanish, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in Course 2 special attention will be paid to Spanish composition.

Text-books: Loiseaux, Spanish Grammar, Elementary Spanish Reader, Spanish Composition; P. A. de Alarcon, El Capitan Veneno; Galdos, Marianela, Dona Perfecta; Carrion y Aza, Zaraguela.

Outside reading: Valera, El Pojaro Verde; Lesage Gil Blas (Padre Isla's translation).

Equivalent to Course 1-2 as given in Columbia College.

## ACADEMIC CALENDAR

1911—Sept. 18—Monday, Entrance examinations begin

Sept. 20-Wednesday, Registration begins

Sept. 27—Wednesday, First half-year (158th year) begins

Sept. 28—Thursday, Extension Teaching courses begin

Nov. 7—Tuesday, Election Day, holiday

Nov. 30—Thursday, to Dec. 2, Saturday, inclusive—Thanksgiving holidays

Dec. 20—Wednesday, to Jan. 2, 1912, Tuesday, inclusive—Christmas holidays

1912-Jan. 25-Thursday, Examinations (Extension Teaching) begin

Feb. 7-Wednesday, Second half-year begins

Feb. 22-Thursday, Washington's Birthday, holiday

April 4—Thursday, to April 8, Monday, inclusive—Easter holidays

May 23—Thursday, Final examinations (Extension Teaching) begin

May 30—Thursday, Memorial Day, holiday

June 2—Sunday, Baccalaureate service

June 5—Wednesday, Commencement

June 17—Monday, Entrance examinations begin

July 8—Monday, Thirteenth Summer Session opens

Aug. 17—Saturday, Thirteenth Summer Session closes

Sept. 16—Monday, Entrance examinations begin

Sept. 18—Wednesday, Registration begins

Sept. 25—Wednesday, First half-year (159th year) begins

The academic year is thirty-seven weeks in length, ending on the second Wednesday in June although the actual class work is uniformly assigned to fifteen weeks each half year.

The exercises of the University are suspended on Election Day, Thanksgiving Day and the following two days, for two weeks at Christmas, (December 20 1911, to January 2, 1912, inclusive), on Washington's Birthday, from the Thursday before Good Friday through the following Monday, and on Memorial Day

The complete Academic Calendar will be found in the University Catalogu and, so far as it refers to the students studying under any Faculty, in the an nouncement of that Faculty.

Ifth Series, No. 19



# Columbia University Bulletin of Information

# **EXTENSION TEACHING**

FTERNOON, EVENING AND SATURDAY CLASSES

NEW YORK, BROOKLYN, BUFFALO, NEWARK, TRENTON

ANNOUNCEMENT

1912-1913

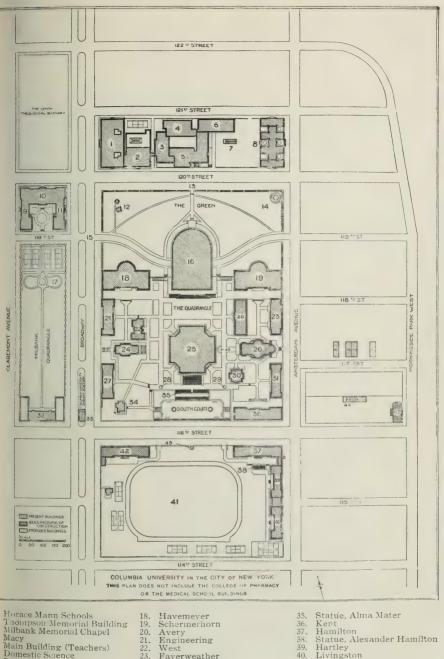
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New York, N. Y.

# Columbia University Bulletin of Information

(Issued 25 times during the academic year, monthly in November and December, and weekly between February and June, Entered as second-class matter at the New York, N. Y., Post Office, Dec. 22, 1900, under Act of July 16, 1894.)

These issues include:

- 1. The Reports of the President and the Treasurer to the Trustees.
- 2. The Catalogue of the University, issued in December, price 25 cents.
- 3. The Announcements of the several Colleges, Schools, and Divisions, as to the work of the next year. The right is reserved to make changes in detail as circumstances require. The current number of any Announcement will be sent upon application to the Secretary of the University.



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Women's Dormitory

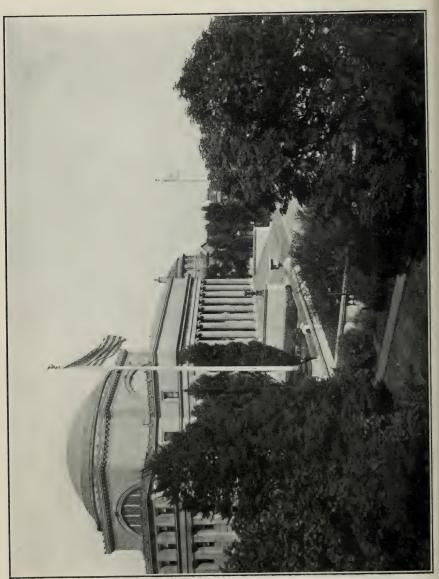
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#### OFFICERS OF EXTENSION TEACHING 1912-1913

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#### Administrative Board

JAMES CHIDESTER EGBERT, PH.D.

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Director of the Summer Session and Extension Teaching

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Associate Professor of the Germanic Languages and Literatures

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Assistant to the Director, Brooklyn

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Frank A. Dickey, A.B. Assistant Registrar

Charles S. Danielson
Bursar

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EUGENE A. AGGER Economics and Money and Banking A.B., Cincinnati, 1901; A.M., 1902; Ph.D., Columbia, 1906; assistant professor 1911-
LUTHER HERBERT ALEXANDER
B. M. Anderson, Jr. Finance  A.B., Missouri, 1906; professor of political economy, Missouri Valley College,  Marshall, Mo., 1906-07; head department of history and political economy, State  Normal School, Springfield, Mo., 1907-11; A.M., Illinois, 1910; Ph.D., Columbia  1911; instructor in economics, 1911-
MATTHEW GRUENBERG BACH
RICHARD FRANZ BACH
JESSE E. BEANS
ALEXANDER O. BECHERT  A.B., Columbia, 1903; A.M., 1904; scholar in German, 1903-04; fellow, 1904-06; teacher in Curtis High School and tutor in College of the City of New York, 1905-06; lecturer in German, Columbia, 1906-07; instructor, 1907-
E. T. Bell
PREDERICK REGINALD BEYGRAU
DINO BIGONGIARI  Prendiction of the Columbia 1902: assistant in Latin. 1904-06; lecturer, tutor and assistant in Latin. 1904-06; lecturer, tutor and assistant in Latin. 1904-06; lecturer, tutor and assistant in Latin.

DINO BIGONGIARI

A.B., Columbia, 1902; assistant in Latin, 1904-06; lecturer, tutor and assistant in Romance Languages, 1907
ON AND COUNTY ROWES

Agricultur.

ORLANDO CURTIN BOWES

B.S. in agriculture, Pennsylvania State College, 1909; superintendent dairy farms of James Marsteller, South Bethlehem, Pa.; agriculturist Rossiter Realty Co., Delaware Water Gap, Pa.; head of animal husbandry department, School of Agriculture, Alfred University, 1912-

DAVID E. BOYCE

Certified Public Accountant of the State of New York; member of New York
State Society of Certified Public Accountants; member of the American Association of Public Accountants; chief accountant of the firm of Westinghouse, Church, Kerr & Company, Engineers, 1904.

WILHELM ALFRED BRAUN

A.B., Toronto, 1895; Ph.D., Columbia 1903; professor of French and German, Alma College, Ontario, 1897-98; assistant, tutor, instructor, assistant professor and associate professor, Columbia, 1900-

GEORGE M. BRETT
HAROLD CHAPMAN BROWN
A.B., Williams, 1901; A.M., Harvard; 1903; Ph.D., 1905; assistant, Harvard, 1904-06; assistant and instructor, 1906-
Charlee Howard Burnside Architecture
B.S. (architecture), Columbia, 1898; A.M., 1899; instructor in mechanics, Wisconsin 1900-03; assistant professor, 1903-09; associate in physics, Columbia, 1909-10; assistant professor of mechanics, 1910-
Leo Pierre Callan Stenography and Typewriting
A.B., University of Niagara, 1907; A.M., 1909; instructor High School of Commerce, Niagara University, 1907-08; assistant principal, department of commerce and finance, Niagara University, 1908-09; professor, department of commerce, St. Johns College, 1909-10; assistant lecturer in commercial education, Teachers, College, 1910-11.
ROBERT E. CHADDOCK Business and Social Statistics
A.B., Wooster College, 1900; A.M., Columbia, 1906; Ph.D., 1908; associate, professor, 1911-
GRACE LOUISE COOK
A.B., Wellesley, 1899; A.M., 1905; instructor in methods in English, New York Training School for Teachers, 1906.
WILLIAM FORBES COOLEY
B.S., New York, 1878; M.S., 1892; B.D., Union Theological Seminary, 1907; Ph.D., Columbia, 1909; assistant and instructor, 1907-
CLARENCE COPELAND Investments
B.C.S., New York University, 1905; LL.B., 1906.
RICHARD DUDLEY CURRIER
A.B., Yale, 1900; LL.B., New York Law School, 1902; President Board of Trustees and Professor of Law, New Jersey Law School, 1908-
CARLTON CLARENCE CURTIS
A.B., Syracuse, 1889; A.M., Columbia, 1892; Ph.D., 1893; tutor, instructor; adjunct professor and associate professor, 1897-
CHESTER A. DARLING
A. B., Albion, 1904; A. M., 1906; Ph. D., Columbia, 1909., assistant, tutor and instructor, 1906-
MILTON JUDSON DAVIES Assistant to Director, Brooklyn
A.B., Chicago, 1903: Educational Director, Central Branch, Brooklyn Young Men's Christian Association, 1905-
FAYETTE BROWN DOW
A.B., Amherst, 1904; LL.B., Columbia, 1909.
DANIEL B. DUNCAN
M.Acct., Hurd's National Business College, 1888; Ph.B., Upper Iowa University, 1890; head of department of English, Columbia Grammar School, 1900-

W. O. FARNSWORTH

HERMON WALDO FARWELL

1909-10.

FARNSWORTH French and Spanish A.B., Harvard, 1893; A.M., 1894; instructor in modern languages, Pennsylvania

State, 1894-95; instructor in French, University of Iowa, 1898-1900; instructor in French, Yale, 1900-1906; professor of modern languages, Franklin and Marshall,

. French and Spanish

Physics

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A.B., Dartmouth, 1902; A.M., 1906; instructor in physics, Dartmouth, 1904-06; assistant and instructor, Columbia, 1908-
JAMES KIP FINCH
HARRY LINN FISHER
CAMILLE FONTAINE  B.ès L., University of Paris, 1875; Bachelier en Droit, 1877; Licencié en Droit  1878; instructor and assistant professor, Columbia, 1909-
EDWARD JOSEPH FORTIER
DIXON RYAN FOX
JOHN C. FRAZEE
FRED D. FROMME
CHARLES ROBERT GASTON
JOHN L. GERIG
HENRY HERBERT GODDARD  A.B., Haverford, 1887; A.M., 1889; instructor, University of Southern Cafornia, 1887-8; fellow, Clark University, 1896-99; Ph.D., 1899; principal, Damcus (Ohio) Academy, 1889-91; assistant, 1891-3; principal, 1893-6 Oak Greeninary, Vassalboro; professor of psychology, State Normal School, W. Chester, Pa., 1899-1906; director department of research, Training School Feeble Minded Children, Vineland, N. J., 1906-
LOUIS GORDON
JOSEPH C. GREEN
ROSCOE GUERNSEY.  A.B., Union, 1906; Ph.D., Johns Hopkins, 1901; tutor and instructor in class philology, Columbia, 1903-

OBERT MURRAY HAIG	Trade and Transportation
A.B., Ohio Wesleyan, 1908; A.M., Illin	ois, 1909; instructor in economics, Colum-
bia, 1912–	
ALTER HENRY HALL	Music
Steggall; theory with H. C. Banister; org Germantown, Philadelphia, 1885-90; St.	ondon, 1878–82; organ pupil of Dr. Charles ganist and choirmaster, St. Luke's Church, Peter's, Albany, 1890–92; Heavenly Rest, New York, 1897–; conductor of Brooklyn niversity Chorus, Columbia, 1910–
LAYTON MEEKER HAMILTON .	English
A.B., Brooklyn Polytechnic Institut 1901-04.	ee, 1900; A.M., Columbia, 1901; tutor,
HARLES ALONZO HARRIMAN	Architecture
Student, Massachusetts Institute of ciate and assistant professor, Columbia,	f Technology, 1880-91; instructor, asso- 1891-
HOMAS H. HARRINGTON	Drawing
C.E., Columbia, 1889; assistant, tutor	, instructor and assistant professor, 1894-
DWARD FRANKLIN HAUCH A.B., Toronto, 1907; A.M., Columb 1907-11; instructor, Rutgers College, 1	ia, 1909; teacher, Horace Mann School, 911-
REDERICK W. HEHRE	Electricity
E.E., Columbia, 1908; tutor and instr	uctor, 1909-
REDERICK WILLIAM JUSTUS HEUSER	German
A.B., Columbia, 1901; A.M., 1902; assistant professor, 1902-	assistant, lecturer, tutor, instructor and
ilo B. Hillegas	Education
Ph.B., Rochester, 1897; Ph.D. Colum education, Teachers College, 1911-	bia 1912, assistant professor of elementary
ILBERT HINDERMYER	Architecture
Student at Pennsylvania Academy of Scholarship; with Messrs. Carrère and H	Fine Arts; winner of Cresson Travelling lastings.
erdinand F. Hintze, Jr	Geology
A.B., Utah, 1908; A.M., 1911; assistan	nt in palaeontology, Columbia, 1911-
ARRY L. HOLLINGWORTH	Psychology
A.B., Nebraska, 1906; Ph.D., Colum' 1907-	bia, 1909; assistant, tutor and instructor,
DWARD F. HUMPHREY	History
A.B., Minnesota, 1903; A.M., Columb	ia, 1909; instructor, 1911-
OUIS IMBERT	French
	assistant in Romance languages, Illinois, guages, Pennsylvania, 1909–10; instructor,

JOHN WILLIAM INGLE, JR. . . . . . . . . Architecture Assistant in drafting room, School of Architecture, Columbia, 1909-10; B.Arch,

B.S., Ohio Northern, 1900; M.S., 1907; B.C.S., New York, 1909; M.C.S., 1912

. . . . . . . Physical Education

Bookkeeping

1912.

EDWARD T. KENNEDY . . .

Instructor in swimming, Columbia, 1910-

C. Bernard Koopman . . . .

B.Mus., Yale, 1902; fellow of the American Guild of Organists; Mosenthal
B.Mus., Yale, 1902; tellow of the American Galactic Stant, Teachers fellow, Columbia, 1906; organist, Summer Session, 1907-; assistant, Teachers College, 1912-
FELIX LAMOND
Organ pupil of William Henry Monk, King's College, London, editor of Hymns Ancient and Modern; piano pupil of Ernst Pauer, London, 1880-85; professor of organ, Woman's College of Baltimore, 1889-90; lecturer, professor of organ and piano, Michigan State Normal, 1890-97; organist and choirmaster, Trinity Chapel New York, 1897-
WILLIAM K. LANE Mathematic
A.B., Williams, 1901; instructor Prospect Heights School, Brooklyn, 1904—principal, 1909—; graduate student, New York University, 1909—
A APPRILIP I IVINGSTON
A.B., Amherst, 1905; instructor, Smith College, 1908-09; tutor, Columbia, 1910-10; assistant professor, Cornell, 1910-11; assistant professor, Columbia, 1911
Frenc
LOUIS AUGUSTE LOISEAUX  Certificat d'études primaires supérieures, Académie de Dijon, 1887; brev d'instituteur, 1887; B. ès S., University of Dijon, 1894; tutor, instructor, adjun professor and assistant professor, Columbia, 1892–  Hebre
ELIAS MARGOLIS A.B., Cincinnati, 1900.
CHARLES E. MATHER
CHARLES T. McFarlane  B.Pd., N. Y. State Normal College, 1894; D.Pd., 1904; M.Pd., Michigan St. Normal College, 1901; professor, 1892–1901; principal, Brockport Normal Schot, 1901–10; lecturer on geography, N.Y. University Summer School, 1906–Columbia Summer Session, 1909–10; controller, Teachers College, 1910–
JAMES HOWARD McGregor . Zook B.S., Ohio State, 1894; A.M., Columbia, 1896; Ph.D., 1899; assistant, tul instructor and assistant professor, 1897-
Mathana
FRANK J. MCMACKIN

A. COHN-MCMASTER French
A.B., Columbia, 1910; lecturer romance languages, 1911.
OUDLEY H. MILES
VILLIAM MILWITZKY Romance Languages
Student of Romance Philology, University of Paris, 1895-99; Élève Titulaire de l'École des Hautes Études (Section des sciences historiques et philologiques), 1896-99; private tutor in family of Gaston Paris.
ULIA POST MITCHELL
B.L., Smith, 1901; A.M., Columbia, 1904; instructor, Vassar, 1906-07; instructor Teachers College, 1911-
HEODORE C. MITCHILL
A.B., Columbia, 1886; A.M., 1901; principal, Jamaica High School, New York 1910-
ROBERT H. MONTGOMERY
Member Pennsylvania Institute of Certified Public Accountants; fellow American Association of Public Accountants; editor, American Edition, Dicksee's Auditing, American Business Manual; instructor in auditing, Pennsylvania, 1904-07; New York, 1906-08; member of the firm of Lybrand, Ross Brothers & Montgomery, Certified Public Accountants.
VILLIAM CABLER MOORE
B.S., University of Nashville, Peabody College, 1903; assistant in chemistry, 1903-06; Ph.D., Chicago, 1910; tutor in analytical chemistry and instructor, Columbia, 1909-
A.B., Illinois, 1905; M.S.A., Cornell, 1907; Ph.D., 1909; professor, Columbia, 1911-
HENRI FRANÇOIS MULLER French B. ès L., University of Paris, 1897; tutor and instructor, Columbia, 1903-
GEORGE W. MULLINS
A.B., Harvard, 1893; B.D., New York, 1897; Ph.D., Columbia, 1907; assistant professor, 1911-
ARTHUR C. NEISH

Music

JOHN W. NICHOLS
Tenor, pupil of Dr. Carl Dufft, New York, 1902-05; Edward Res, Bordon, 1905-06; Jean de Reszke, Paris, 1906-07; tenor soloist, American Church in Paris, 1906-08; Flatbush Reformed Church, 1909-; St. Paul's Chapel, Columbia, 1909-; oratorio and concert singer, 1905-
MARIORIE ()'CONNELL
A.B., Columbia, 1911; A.M., 1912; assistant, Summer Session, 1912.
HARRY VICTOR E. PALMBLAD
AB., Columbia, 1907; A.M., 1910, Instructor, Columbia, 1912–
Frank Allen Patterson
A.B., Syracuse, 1904; A.M., Columbia, 1907; Ph.D., 1910; assistant, Syracuse, 1903-04; instructor in Summer School, Syracuse, 1904; instructor in English, Blees Military Academy, Macon, Missouri, 1904-06; assistant professor of English, Illinois, 1911-12.
George A. Pfeiffer
M.E., Stevens, 1910; A.M., Columbia, 1911; assistant, 1911-
THE PROJECTION PITKIN
A.B., Michigan, 1900; B.D., Hartford Theological Seminary, 1903; associate professor of philosophy, Columbia, 1912-
Psychology
A.B., Bucknell, 1909; A.M., Columbia, 1910; Ph.D., 1912; assistant and lecturer,
ALLEN WILSON PORTERFIELD
MAURICE J. PRÉVOT  Diplome d'Architecte, 1900; premier second grand Prix de Rome, 1901; second gold medal Salon des Champs Elysées, 1904; officier d'Académie, 1906; professor of design, Cornell, 1904-06; associate, Columbia, 1910-
English English
FREDERICK B. ROBINSON  A.B., College of the City of New York, 1904; A.M., New York University, 1906  Ph.D., 1907; instructor, College of the City of New York, 1907; lecturer, New York University, 1907-9; public lecturer, Board of Education, 1908-; lecturer, College of the City of New York Extension Courses, 1909-; assistant to the Director, Evening Session, College of the City of New York; lecturer for the Brooklyn Teachers' Association, 1910-
A. FRANKLIN ROSS
A.B., Brown, 1899; A.M., 1900; Ph.D., New York University, 1900
HENRY H. L. SCHULZE  A.B., College of the City of New York, 1903; A.M., Columbia, 1905; instructor in German, Williams, 1907-09; tutor and instructor, Columbia, 1909-
HISTON
ROBERT LIVINGSTON SCHUYLER  A.B., Columbia, 1903; A.M., 1904; Ph.D., 1909; instructor in history, Yal  1906-10; lecturer and assistant professor, Columbia, 1910-

HERBERT N. SHENTON Sociology Ph.B., Dickinson College, 1906; A.M., 1909; B.D., Drew Theological Seminary, 1910.
A.B., Toronto, 1898; Ph.D., Columbia, 1903; assistant, lecturer, instructor, adjunct professor and professor, 1900-
CHARLES G. SIMPSON
EDWARD R. SMITH Fine Arts A.B., Amherst, 1876; reference librarian, Avery Library, Columbia, 1895-
MISS ARRIETTA SNYDER Education
HARRISON ROSS STEEVES
W. S. STEVENS  A.B., Colby College, 1906; A.M., George Washington University, 1909; fellow in economics and political science, 1908-09; fellow in economics, Cornell, 1910-11; assistant in economics, Pennsylvania, 1911-12.
EDWARD KELLOGG STRONG, JR
EDWIN P. TANNER
ALGERNON TASSIN
RUPERT TAYLOR
EARL THARP
SAMUEL MARION TUCKER
A.B., Wofford, 1896; A.M., Columbia, 1901; Ph.D., 1908; head department of English, Florida State College, 1903-05; dean, Florida State College, 1905-11; head, department of English, Polytechnic Institute of Brooklyn, 1911

MILTON HAIGHT TURK		English
A.B., Columbia, 1886; A.M. and Ph.D., Leipzig, 1889; tary of faculty, Hobart, 1890-97; dean, William Smith, 1907-	professor a	and secre-
CARL VAN DOREN		English
A.B., Illinois, 1907; Ph.D., Columbia, 1911; assistant in ri 08; instructor in English, Columbia, 1911-	netoric, Illin	101S, 1907-
THADDEUS W. VENESS	. Negotial	ble Paper
A.B., Oberlin, 1906; principal high school; and superintend Minn., 1906-10; instructor in State summer school for teach 11.	lent of scho	ols, Fulda,
CHARLES P. WARREN		chitecture
Ph.B., Columbia, 1890; A.M., 1892; assistant professor,	1909-	
	Physical 1	Education
Instructor in boxing, Columbia, 1910-		
Frederick P. Whitaker		Contracts
A.B., Stanford, 1905; LL.B., Columbia, 1908; assistant, 19	909-	
		Mechanics
HERBERT L. WHITTEMORE		
ALICE T. WHYTE		Education
M. Pd., New York University.		
		English
SAMUEL LEE WOLFF	b D Colu	-
A.B., Harvard, 1892; A.M., LL.B., Columbia, 1896; P assistant professor of English, Tennessee, 1905-07; instructo	r in rhetoric	e, Michigan
1907–08.	<i>α</i> 1 • • • •	nl.:lalage
THEODORA ETHEL WYE	Classical	or ancietan
Diploma, Michigan State Normal College, 1900; B.S., Co in Latin and Greek, Columbia, 1909-	olumbia, 19	U7; assistan

#### INTRODUCTORY

The statutes of the University (Section 230) define Extension Teaching as "instruction given by University officers and under the administrative supervision and control of the University, either away from the University buildings, or at the University, for the benefit of students unable to attend the regular courses of instruction."

#### Students

Courses in Extension Teaching are planned for two classes of students,—first, men and women who can give only a portion of their time to study and who desire to pursue subjects included in a liberal education of the character and grade of a college or professional school, but without any reference to an academic degree,—second, those who look forward to qualifying themselves to obtain in the future academic recognition, involving acceptance of the work which they may satisfactorily complete in Extension Teaching.

Students who are duly admitted to Extension courses but are not candidates for a degree or diploma are termed non-matriculated students. Students who have completed the requirements for admission and have been formally admitted by or in behalf of the Faculty concerned as candidates for a degree or diploma, are termed matriculated students.

## Courses of Instruction

Under the direction of the University Council courses are offered in Extension Teaching which count toward the degrees of A.M. and Ph.D.

Regular courses of instruction are offered in Extension Teaching which in many instances are co-ordinated so as to form at least the first year of collegiate and professional work thus providing in the evening at Morningside Heights, and elsewhere, courses in subjects which are generally offered in the Freshman and Sophomore years of college, so that students may qualify themselves for admission with advanced standing to Columbia College and Barnard College as candidates for the degrees of A.B. and B.S.

There are also offered at Morningside Heights in the evening subjects which are given in the Schools of Mines, Engineering and Chemistry, so that a student may pursue some special line of scientific study or prepare himself for the second or third year in these schools. After 1914 courses in these schools will be open only to those who have had a preliminary course of three years in Columbia College or the equivalent.

Evening courses are offered in 'architecture at Morningside Heights which correspond to the courses of the Columbia Uni-

versity School of Architecture.

Evening courses in Commerce and Finance, forming the first two years of a three-year course leading to a certificate in commerce and preparing for the State examination for the certificate of Certified Public Accountant will be given at Morningside Heights and elsewhere.

A series of courses intended to equip students for the position of secretary is also offered. The completion of these courses will require three years for high school graduates and at least one

year for college graduates. (See p. 7).

Many courses are offered which aid a student to prepare for the Schools of Law, Medicine and Journalism or to complete his preparation for Columbia College or for the scientific schools.

A two years course in practical optics is offered in co-operation with the Department of Physics for the special training of those who expect to become optometrists.

Courses are offered in agriculture for those who desire special work in that subject.

A large number of other courses in varied subjects is given late in the afternoon and on Saturday which repeat those in liberal studies offered in the Colleges of the University. These are given in the same manner and often by the same instructors as the regular courses. In many instances university credit is granted.

Numerous courses are given at various centres. These are either regular courses of collegiate grade or those preliminary thereto. Lecture courses arranged in groups of six lectures are given in different centres.

Lecture-study courses in certain subjects forming thirty lectures alternating with quiz or conference hours are given at Morning-side Heights and at centres when requested.

Centres for the study of choral music are maintained at Morn ingside Heights, Brooklyn, New Rochelle and Yonkers, and large choral concerts are offered during the year.

## Registration

Students who expect to attend at Morningside Heights are required to register at the office of the Registrar, 201 East Hall, 116th Street and Amsterdam Avenue. A student in Extension Teaching will register for one half-year and is required to renew his registration in person at the beginning of the second halfyear. Fees must be paid at the time of registration. (See below). Students will be allowed to attend one lecture before registration and payment of fees. Thereafter they will be excluded. The Registrar's office, room 201 East Hall, in addition to the regular daily hours (9 A.M.-5 P.M.) will be open (except on Saturday), from September 23 to October 4, 1912, and from January 30 to February 14. 1913 from 7 to 9.30 P.M., and thereafter from 7 to 9 P.M. The Saturday hours are from 9 to 12. Payment of fees should be made at the office of the Bursar in the same building. Students intending to take courses in any centre will register at that centre in accordance with instructions given in the statements introductory to these courses.

Candidates for admission as matriculated students will be permitted to register provisionally subject to the presentation of satisfactory credentials. Record of attendance will date for matriculated students from Thursday, September 26, for the first term, and from February 5, 1913, for those entering in the second term.

Students desiring credit are not allowed except for reason of weight determined by the Director to register later than October 12, for the first half-year and February 21, for the second half-year.

Matriculated students in the various schools of the University will be allowed to attend courses in Extension Teaching in accordance with the regulations of the several schools; they must, however, register and pay the fees in the same way as other students in Extension courses. Matriculated students will be required to take at least one course of three hours, or two courses of one and one half hours per week, but cannot exceed two periods of classroom work or four hours of laboratory work per day.

#### Fees for Extension Courses

1. All students, matriculated or non-matriculated, admitted to Extension courses, must pay at the time of registration the fees determined by the Administrative Board. The fees for Extension courses are determined as a rule at the rate of \$5 per point, i.e., for one hour per week of classroom work, or two hours of

laboratory or drawing-room work, through a half-year. All students must pay a registration fee of \$5.00, which is payable but once in the University. Students taking six points each half-year have the privileges of the library, dormitories and gymnasium.

Unless otherwise directed, students must pay all fees at the office of the Bursar. This office is open daily from 9.30 A.M. to 3.30 P.M.; Saturday morning from 9 to 12M. The office will be open every evening from 7 to 9 P.M. (except Saturday) from September 23 to October 11, 1912; from October 14 to 31, on Monday and Thursday evenings only. Every evening 7 to 9 P.M. from January 30 to February 14, 1913; from February 16 to 28, on Monday and Thursday evenings only.

Fees must be paid before entering upon the course.

Cards of admission indicating that the student has properly registered and paid his fees will not be sent to the instructor until such payment is made. The fees and points as stated with the various courses are for the half-year.

Should a student desire to withdraw from a course he is liable for the fee up to the end of the term in which notice of withdrawal is received. A student desiring to add or drop a course after the second Saturday of either half-year will be compelled to pay a fee of \$1 for such change.

2. Students in courses in local centres will either pay the fee arranged by the local centre or the usual fees described above. Students will pay fees to the treasurer of the local centre unless otherwise directed. Extension students taking courses in local centres who desire to receive credit for their work must fulfil all the requirements of matriculation described above.

#### Admission to Extension Courses

No examination is required for admission to courses offered in Extension Teaching but students must satisfy the Administrative Board that they can pursue the courses with advantage. It is expected that the prospective students in all collegiate and professional courses shall have had a full secondary school education. The courses are open, unless it is otherwise stated, both to men and women. Admission to a course is determined by the Administrative Board according to the qualifications of the student and the privilege of attendance upon a course which the student is found unfitted to pursue with advantage will be withdrawn.

# Office of Extension Teaching

The office of Extension Teaching is Room 306 Philosophy. Full information as to this department may be obtained, at this

office, which is open from 9-5 daily, Saturday 9-4. This office will be open in the evening from 7 to 9.30, September 16 to October 18 and February 3 to 10, 1913. In the evening the students are referred at other times to the office of the Registrar, East Hall.

#### Location of Extension Courses

Collegiate and professional courses will be given at Columbia University; at 33 East Park Street, Newark, N. J.; in the Prospect Heights School, 51 Seventh Avenue, near Lincoln Place, and three blocks from Flatbush Avenue, Brooklyn; in the Carroll-Robbins High School, Trenton, New Jersey; Lafayette High School, Buffalo, N. Y., and wherever classes of sufficient numbers may be gathered. The most convenient means of access to the University are the Subway (Broadway Branch) to 116th Street, Columbia University Station; or the Sixth or Ninth Avenue Elevated, 110th Street Station, 116th Street Station, or 125th Street Station; and Broadway or Amsterdam Avenue surface lines.

The Prospect Heights School may be reached by Bergen Street, Vanderbilt Avenue, and Seventh Avenue cars. It is within walking distance of the Subway, and Atlantic Avenue Station. No. 33 East Park Street, Newark, is near the Broad Street Station of the Hudson and Manhattan R. R., about ten minutes' walk from the stations of the Pennsylvania R. R., the Delaware, Lackawanna & Western R. R., and the Central Railroad of New Jersey.

#### Calendar and Hours

Columbia University opens on September 25 and Extension courses begin Thursday, September 26. The academic calender calls for thirty weeks of actual class-work. The examination period for the first half-year runs from January 27 to February 1. The second term will open February 5. The examination period for the second half-year runs from May 23 to May 29. The examinations are given in the hours usually assigned to recitations and lectures. The calendar for Extension Teaching is the academic calendar of the University. (See p. 59). Extension courses are usually given in the afternoon after 4 o'clock in the evening of every week day and on Saturday from 9 A.M. to 1 P.M.

Attention is called to the restaurant service at the University Commons maintained for the use of students. Dining-rooms for men and women are located in University Hall. Meals may be obtained at very moderate rates.

A rest room for women students is located on the first floor of the Philosophy Building, open in the morning and afternoon.

#### Commerce

Columbia University through its Extension Teaching offers evening courses in Commerce and Finance. (See p. 19). These cover the first two years of a three-year course. The course will normally require three years of ten hours per week each. The academic year presupposes fifteen weeks of residence in each half-year, or thirty weeks for the year.

The object of these courses is to give a thorough training for those who desire to enter upon a business career immediately after leaving high school, and also to provide for the college student instruction in the principles of business and a more exact knowledge of commerce and finance. The intention is to prepare students for the examinations for the certificate of Certified Public Accountant.

There will be added to these courses in the following year a large number of subjects which will form the remaining year of the evening courses in Commerce. These will include Practical Auditing, Costs Accounts, Executors' Accounts, Economic History, European Banking, Bankruptcy, etc.

## Certificates in Commerce

At the close of each half-year students will receive from the Registrar a report of standing and those who have completed the course in a manner satisfactory to the Administrative Board will receive at the close of three years a certificate signed by the Director of Extension Teaching. In order to be eligible for a certificate covering the entire course a student must secure 62 points of which not more than 11 may be obtained in any one half-year. He is required, however, to have 4 points in Accounting, 8 points in Commercial Law, 10 points in Commerce (of which 6 must be in the Principles of Economics), and 4 points in Finance (Money and Banking)—making a total of 26 points of required work.

The course in Principles of Economics is prerequisite to that in Money and Banking and a knowledge of bookkeeping is presupposed for students taking Accounting.

Many of the courses may be taken in the Summer Session of the University. Students will be called upon to give evidence of their attainment in elementary and business English, and in simple bookkeeping. Students deficient in these subjects will be expected to take them before entering upon their course in Commerce.

#### Session

The courses in Commerce are given every evening at Morningside Heights, 116th Street and Amsterdam Avenue, adjoining the 116th Street Station of the Broadway Branch of the Subway, and at 33 East Park Street, Newark, N. J.

#### Secretarial Courses

The Department of Extension Teaching has provided for men and women a series of courses given in the afternoon and evening which will lead to a certificate in secretarial studies.

The object of these courses will be properly to equip students who desire to become private secretaries or to hold important positions in offices as assistants to public officials or to persons engaged in professional pursuits. The students who undertake these courses in full must have had a high school education or its equivalent. A complete series will demand three years, although this may be reduced by attendance at Summer Sessions or by obtaining advanced standing on the presentation of evidence of having completed any course or its equivalent.

Students may make use of the late afternoon courses as well as those in the evening but evening students are not allowed to exceed 10 hours in a week.

#### Commerce and Finance

The points as indicated are for the half-year

The points as indicated are for the half-year	
Principles of economics  Money and banking  Accounting  Business organization.  Commercial law	2 "2 "
English	
English composition (A1-A2)	2 "
French	
Elementary or intermediate French (A1-A2 or B1-B2).  Conversation and composition	

#### German

Elementary or intermediate German (A1-A2 or B1-B2).  Conversation and composition	
History	
General history (History A1-A2)	3 points
Politics	
Politics 1-2	3 points
Spanish	
Elementary Spanish	3 points
Stenography and Typewriting	

College students who have secured the A.B. or B.S. degree will generally be able to complete the series of secretarial courses in one year, as it is possible to obtain credit for courses which they have covered in their undergraduate career. They must have a knowledge of simple Bookkeeping before undertaking Accounting, and Principles of Economics as a prerequisite for the course in Money and Banking.

Stenography and typewriting ...... 4 points

# Regulations Governing Credit toward the Degrees of A.B. and B.S., Columbia College, Barnard College, and Teachers College

Courses in Extension Teaching approved by the Committees on Instruction of Columbia College and Barnard College may be credited toward the degrees of A.B. and B.S. for matriculated students registered in Extension Teaching who maintain a grade of C or higher.

Students of Columbia College and Barnard College will be allowed to attend Extension courses which are approved by the Committees on Instruction and will be allowed to count them toward the degrees of A.B. and B.S. under the following regulations:

1. The election of Extension courses must be approved by the Committees on Instruction.

- 2. Students will not be allowed to exceed a total of 19 hours per week (16 hours in Barnard College) including the hours of Extension courses, save for reasons of weight and by the special permission of the Committees on Instruction.
- 3. Students desiring these courses to count toward the degrees of A.B. and B.S. must obtain at least a grade of C.
- 4. Matriculated students electing Extension courses after obtaining the approval of the Committees on Instruction must make application to the Director of Extension Teaching, Room 306 Philosophy, and after approval of the application must register for these courses at the office of the Registrar and pay the fees required for such courses.

# Teachers College

Teachers College will continue to give, as hitherto, college credit for Extension courses, according to regulations that may be learned upon application to the Secretary of Teachers College.

# Relation of Extension Teaching to other University Work

- 1. Students taking Extension courses who desire to become candidates for higher university degrees should make application to be received as such to the Dean of the Graduate Faculties, Room 305 East Hall. The requirement for admission to the University as candidate for the A.M. degree is the diploma of A.B. or B.S. or its equivalent from an approved college or scientific school.
- 2. Students taking Extension courses who desire to become candidates for the degree of Bachelor of Arts or Bachelor of Science or for professional degrees in Science, Law, Medicine, Journalism, and Practical Arts should make application to be received as such to the Committee on Undergraduate Admissions, Room 310 East Hall. The requirement for admission to the University as a candidate for these degrees is set forth in the Announcement of Entrance Requirements for 1912-1913, which may be obtained on application to the Secretary of the University.
- 3. Students taking Extension courses who desire to become candidates for a diploma in teaching or for the professional degree of Bachelor of Science in Education should make application to be received as such to the Secretary of Teachers College. The entrance requirement for admission to Teachers College as candidate for the B.S. degree is substantially the same as for candidates admitted to Columbia and Barnard, but two years of work in a college, scientific school, normal school, training school, or technical school are required in addition as prerequisite to admission to its two-year professional courses.

4. Students using Extension courses for the purpose of securing entrance credits must consult Professor Adam Leroy Jones, 310 East Hall. For admission to Barnard College students should consult the Dean of Barnard College before registering.

#### Attendance

For credit toward a degree or for a certificate of proficiency, attendance at nine tenths of the sessions is required in addition to the proficiency attested by examination.

#### Absences

It is a student's duty to attend punctually each class or laboratory exercise in each course.

A student may be absent without penalty in a half-year as follows: from a one-point course, twice; from a two-point course, three times; from a three-point course, five times; from a four-point course, six times; from a five-point course, seven times.

In case this limit is exceeded, a student receiving a grade of D shall not be entitled to credit for that course; a student receiving a grade of C or higher may submit a statement showing the cause of each absence. If, in the judgment of the Administrative Board, these causes were imperative, full or partial credit for the course may be assigned by the Director upon the recommendation of the Administrative Board, in accordance with the extent and reason of the student's absences and the standing attained in the course.

Tardiness shall count as half an absence.

#### Examinations

Two examinations are regularly held, one at the close of the first half-year and the second on the termination of the course. For examination at special times the fee is \$5 for each course.

Students who fulfill the conditions of registration, attendance and accomplishment of work prescribed, together with the payment in full of the fee for the course, will receive a report of standing from the Registrar within three weeks after the close of each half-year.

The student's performance in a course is reported according to the following grades: A, excellent; B, good; C, fair; D, poor; F, failure. Grades A, B, C, and D pass a student in the course. In graduate courses P indicates passed, F, failure. H indicates a record of satisfactory attendance only.

# Library Privileges

The Library of Columbia University and the Bryson Library at Teachers College are open for reference to all students registered in Extension Teaching. All instructors, and non-matriculated students taking courses amounting to at least six points, have the privilege of withdrawing books.

#### Local Centres

To facilitate the work of instruction away from the University, the Administrative Board may institute local centres. Local centres may be established wherever a local community or a local organization undertakes to offer, year by year, one or more of the Extension courses of the University. Local boards of education, teachers' associations, schools, societies, and clubs, desirous of offering Extension courses may be constituted local centres. In general, however, a special local committee (president, secretary, treasurer, and five members representing the particular community) is the usual organization of the local centre.

Local centres are responsible, through the local committee, for the effective arrangement of Extension courses they offer. They determine the courses in co-operation with the Director; they enlist local interest; they provide, by fees or the sale of tickets or otherwise, for all the expenses of their work—the course fee, the cost of syllabi, the travelling expenses of the lecturer, lecture-hall, janitor, printing and advertising, and when lectures are to be illustrated they must provide the lantern and operator. The Administrative Board will establish and conduct local centres where suitable arrangements may be made and sufficient guarantees secured.

#### COURSES OF INSTRUCTION

Note.—The University reserves the right to withdraw, substitute or change any courses which are named in this statement.

Courses corresponding and equivalent to prescribed courses of Columbia College are designated by letters: A, B. A1, B1, refer to the first half-year's work (September-January) in such a course; A2, B2, to the second half-year's work (February-May). In numbered courses, odd numbers designate the first, even numbers the second, half-year.

In the statement of each course the prerequisites are indicated, except that the equivalent of the first half of a hyphenated course (e. g., Botany e1-2) is assumed to be a prerequisite for admission to the second half

#### Credits

The academic credit that may be awarded to students who give evidence of having completed the prerequisite work required by the several faculties is regularly indicated in connection with the statement of each course.

All courses marked Credit I—May be counted toward the degrees of A.B. and B.S. in Columbia College and Barnard College. The question of credit must be determined finally on consultation with the Committees on Instruction of the various Faculties.

IA—May be counted toward the degree of Mus. B. only.

IB—May be counted toward the degrees of A.B. and B.S. in Barnard College only.

Ic—May be counted toward the degrees of A.B. and B.S. in Columbia College only.

All courses marked Credit II—May be offered by graduate students toward the degrees of A.M. and Ph.D.

All courses marked Credit IV—May be counted toward the degree of B.S. in education and toward the appropriate diplomas in teaching, and as a professional option toward the degrees of A.B. and B.S.

All courses marked Credit V—May be counted toward the appropriate degrees in the Schools of Mines, Engineering and Chemistry, and Architecture.

The fees and points as stated with the various courses are for each half-year.

# Accounting (see p. 19)

# Agency (see p. 20)

### Agriculture

Columbia University, through its Extension Teaching, offers courses in agriculture. These courses may, with the approval of the Committee on Instruction, form part of the curriculum leading to the degree of B. S. for students of Columbia College. They will also be open to students who desire to take courses in agriculture alone.

It is recommended that students planning to study agriculture should enter Columbia College and take the subjects prescribed for the B.S. degree. In addition to the courses in Agriculture, the student should take American History 15–16, Chemistry A, Economics 1–2, Politics 1–2, Botany 1–2, Geology 1–2, and Zoology 1–2. For these courses, see below.

Courses e1-2 will be open to those who are regular students of Columbia University and to those who have had sufficient academic preparation to profit by the instruction offered. Courses e3-4 and e5-6 and e7-8 are open to any qualified student.

e1-2—Principles of agriculture. Lectures and laboratory. 3 points each half-year. Professor Morgan

9.10-12 A.M., S., Room 505 Schermerhorn; laboratory 9.30 A.M., W. Room 502 Schermerhorn. Fee, \$15 each half-year. Credit IV

The object of this course is to give the student entering the study of agriculture a clear understanding of the main problems and principles of present day scientific agriculture. In the fields of plant and animal husbandry the following topics wil be treated in lecture and laboratory work: soils, soil management, drainage, fertilizers, field crops, crop rotations, cattle, dairying, horses, sheep, hogs, poultry, orcharding, gardening, marketing, and farm management. Animal husbandry will receive only slight consideration.

e3-4—Animal husbandry. Lectures and laboratory. 3 points each half-year. Mr. Bowes

1.10 P.M., Tu. and Th., Room 407 Schermerhorn; laboratory, 2-4 P.M., Th., Room 502 Schermerhorn. Fee, \$15 each half-year. Credit IV

The object of this course is to give an introduction to both the theory that underlies the management of cattle, horses, sheep, swine and poultry, and also the current practices of the management of these farm animals. Excursions to nearby modernly equipped and operated farms will, besides regular laboratory exercises, be essential parts of the course.

# e5-6—Special lectures in agriculture.

4.30 P.M., W., Room 305 Schermerhorn. Sixteen lectures. Fee, \$10 each half-year

These lectures will be open to the public. They will be given by agricultura experts in their specialties. The lectures will begin Wednesday, November 20 1912. Write for special fall announcement.

e7-8—Horticulture. A course in Horticulture will be given, if elected by ten students, on Tuesday and Thursday evenings at 7.30–9.30. Fee, \$15 each half year. Names should be sent to the Director of Extension Teaching before September 26 and not later than October 10. Credit IV

# Farm Forestry, see Botany (p. 17)

#### Architecture

The following evening courses in Architecture will be offered in the year 1912–13. They cover the first year of the School of Architecture and the greater part of the work taken in the second year. These will count toward the certificate and the degree in Architecture for those who have passed the entrance examinations. (See special circular.) They are open, however, to qualified students without examination.

Courses  $e\mathbf{X}$  and  $e\mathbf{Z}$  are intended for students who have not had any training in mathematics and construction.

For schedules of subjects and points see the Announcement of Fine Arts.

The number of points is indicated with the statement of the course.

eW1—Elementary freehand drawing. (See also under Mechanical Drawing.) One hour lecture and six hours drafting per week. First half-year. Mr. J. E. Beans.

6.20-7.10 and 8.10 -9.50 or 6.20-8.10 and 9-9.50 p.m., M., W. and F., Room 601 Engineering. Fee, \$20

Repeated in second half-year if called for.

This course will consist of practice in drawing from casts in outline, in light and shade, and in the elements of free-hand perspective.

It is intended to give a solid foundation in the principles of freehand drawing from a structural standpoint, and it is the aim to develop a perception of form, proportion and construction as well as facility in representing the same.

The instruction will consist almost entirely of individual criticism and the student will be urged to go as far as his individual ability will allow.

# eX1–X2—Elements and applications of algebra, geometry and trigonometry. Mr. $\ensuremath{\mathsf{FRAZEE}}$

6.10-7 P.M., M. and Th., Room 202 Hamilton. Fee, \$15 each half-year

The introductory work of this course will consist of a drill in the principles and applications of elementary algebra through quadratics. This will be followed by a brief treatment of a few of the most fundamental propositions of geometry. The last part of the course will be devoted to plane trigonometry and its applications to problems of a purely practical nature, and will include drill in the use of logarithms and the slide rule. The course is intended solely for men who are engaged in practical work and who do not intend to enter the University.

# eZ1-Z2-Mechanics applied to construction. Professor Burnside

6.10-7 P.M., Tu. and F., Room 203 Hamilton. Fee, \$15 each half-year Algebraic and graphic methods are considered in parallel; composition and resolution of forces; principles of equilibrium; static friction; determination of stresses in simple jointed frames, such as trusses and cranes; centroids, moments of inertia, and radii of gyration of built-up beam and column sections; tension, compression and shear; strengths of beams and columns, and riveted joints.

Prerequisites: Elements and applications of algebra, geometry and trigonometry,

or the equivalent.

e1—The elements of architecture. 2 points. First half-year. Professor Harriman

8.20-10 P.M., W. and F. One hour lecture and three hours' drafting. Room 505 Avery. Credit V. Fee, \$10

Mouldings, the orders, intercolumniation and superposition, balustrades, arcades, doors, windows, roofs, spires, vaults, domes.

Text-book: Ware, The American Vignola.

e2—The elements of architecture. 2 points. Professor Harriman 8.20-10 p.m., W., and F. Second half-year. Room 505 Avery. Credit V. Fee, \$10

Exercises in applications of elementary architectural forms as given in course e1; of shades and shadows as given in course e5.

e71-72—Drawing. 4 points. Professor Harriman 8.20-10 p.m., M. and Th. Room 504 Avery. Credit V. Fee, \$20 Drawing in outline; isometric; from cast and still life.

e5-Shades and shadows. 4 points. Mr. INGLE

7.30-8.20 P.M., M., W., and F., Room 405 Avery; 7.30-9.10 Tu. Room 504 Avery. First half-year. Credit V. Fee, \$20

Shades and shadows, projections and intersections; 3 hours lectures, 2 hours in drafting room.

e6—Perspective. 4 points. Mr. INGLE

7.30-8.20 P.M., M., W., and F., Room 405 Avery; 7.30-9.10 P.M., Tu., Room 504 Avery. Second half-year. Credit V. Fee, \$20

Twelve plates are required.

Equivalent to Architecture 7 of the regular course,

e9-10—Descriptive geometry—2 hours lectures. 16 to 24 plates required. 3 points first half-year, 2 points second half-year in the School of Architecture. Professor Harrington. Credit V. Fees, \$15 first half-year; \$10 second half-year

6.10-7 P.M., Tu. and F., Room 306 Engineering.
Equivalent to Architecture 6 of the regular course.

e13-14—Building materials. 2 points each half-year. Mr. HINDER-MYER

9.10-10 P.M., M. and Th., Room 405 Avery. Credit V. Fee, \$10 each half-year

Specifications, properties and tests of building materials used in carpentry, slow-burning construction, steel and iron construction, masonry, fire-proofing, reinforced concrete, plumbing and electric light wiring.

e15-16—Structural Design—2 points each half year. Mr. Warren 6.10-8 p.m., W., Room 407 Avery. Credit V. Fee, \$10 each half year.

Graphical analysis and calculations, without the calculus, of roof trusses, girders, piers, buttresses, arches and retaining walls.

e21-22—Ancient and medieval architecture. 2 points. Mr. R. F. Bach

6-6.50 P.M., M., Room 408 Avery. Credit I, V. Fee, \$10 each halfyear

The ancient architecture of Egypt, Assyria, Persia, Greece and Rome; early Christian, Byzantine, Romanesque and Gothic architecture.

[e23-24—Renaissance, modern and Oriental architecture. 2 points each half-year. Mr. R. F. BACH

Credit I, V.

The architecture of the Renaissance in Italy, France, Germany, Spain and England; European architecture of the 19th century; American architecture; Moslem and Indian architecture.

Not given in 1912-13 but in 1913-14.]

e31-32—History of ancient ornament. 2 points each half-year. Mr. R. F. Bach

6-6.50 P.M., W., Room 408 Avery. Credit I, V. Fee, \$10 each half year

The decorative forms of Egyptian, Assyrian, Persian, Cypriote, Mycenaean Greek and Roman art, together with a consideration of the origin of ornament. Collateral work, two practical studies upon assigned topics.

#### Design

The courses in Design are conducted on the basis of a progressive series of problems and sketches. These are assigned in the form of programs issued at stated intervals. The work of the students delivered at a designated time is passed upon by a jury of architects who rate each design as a "pass," a "mention" or a "special mention," which grades are regularly valued at 3, 4 and 5 points respectively. Sketches are judged either as "passes" or as "mentions," counting 1 and 2 points respectively. The

achievement of 18 points is considered sufficient to advance the student to the next higher grade, except in the case of Advanced Design, in which 22 points are required to complete the course. More detailed information on this head will be given at the first meeting of the courses.

# **e61–62—Elementary design.** 15 hours. Mr. Prévot Room 601 Avery. Credit (V\*). Fee, \$20

Problems and sketches in the use of the orders and in the treatment of walls, facades and architectural details.

Prerequisites: work in the Elements of Architecture and Shades and Shadows, corresponding respectively to e1, 2, and e5, or their equivalents; such equivalents to be determined in their respective courses by Professor Harriman and Mr. J. W. Ingle, Jr. Students who wish subsequently to transfer their credits to the records of the School of Architecture must also submit Descriptive Geometry, e9-10 or its equivalent.

# e65-66—Advanced design. 20 hours. Mr. Prévot Room 601 Avery. Credit (V\*). Fee, \$20

Problems and sketches in designing large and complex structures and groups of buildings, landscape architecture, decorative edifices.

Prerequisites: work corresponding to the courses in Elementary and Intermediate Design in the regular curriculum of the School of Architecture, or their equivalents; such equivalents to be determined by Mr. Prévot. Students who wish subsequently to transfer their credits to the records of the School of Architecture must submit at that time any further prerequisites which may be demanded under the conditions of registration therein.

# Bookkeeping (see p. 19)

# Botany

e1-2—Nature and development of plants. Lectures and laboratory. 4 points each half-year. Dr. DARLING

7.20-8.35 P.M., Tu. and F., Room 505 Schermerhorn. Laboratory 8.35-9.50 P.M. Credit I, IV. Fee, \$20 each half-year

Organs, structure and work of the plant; development of plant life through an examination of the important biologic types.

e1a-2a—General botany. Lectures and laboratory. 2 points each half-year. Professor Curtis and Dr. Darling

1.10 P.M., S., Room 505 Schermerhorn. Laboratory, 2.10-4 P.M., Room 502 Schermerhorn. Credit I, IV. Fee, \$10 each half-year

This course consists of two parts: 1. The structure and physiology of plants.

2. The evolution of plants. Part 2 will be given in 1912-13.

\*Students desiring credit for this course in the School of Architecture must submit work bearing the attestation of Mr. Prévot at a regular judgment of the School. Requests for such transference of credit should be made to Mr. R. F. Bach, or left in writing for him at the office of the Director of Extension Teaching.

NOTE.—Students may meet Mr. Prévot on September 28 and October 5 at 3 P.M. and on September 30 and October 2 at 7.30 P.M. For the second half-year on February 8 and 15 at 3 P.M. and on February 10 and 13 at 7.30 P.M.

e3a-4a—Plant morphology. Lectures and laboratory. 2 points each half-year. Professor Curtis and Mr. Fromme

10-11 A.M., S., Room 401 Schermerhorn. Laboratory, 11-12 A.M., Room 502 Schermerhorn. Credit I, IV. Fee, \$10 each half-year

This work consists of two parts: 1. The morphology and development of seed plants. 2. The relationship of flowering plants. Part 1 will be given in 1912-13.

e5-6—Students having completed the preceding courses may continue their work by registering for this course, the hours and character of the work to be determined upon consultation with Professor Harper. 2 points, each half-year. Credit I. Fee \$10 each half-year.

e7-8—Farm forestry. Lecture, laboratory and field work. 2 points each half-year. Dr. DARLING

1.10-2.10 P.M., Sat., Room 516 Schermerhorn. Laboratory 2.10-4 P.M., Room 502 Schermerhorn. Credit IC, IV. Fee, \$10 each half-year.

Management of the wood lot, including planting, protection, estimating and cutting; also uses and preservation of timber. The lecture work may be taken separately.

Business Organization (see page 19)

#### Chemistry

Note.—For students in Chemistry a laboratory deposit of \$20 is required.

eA1-A2—General chemistry, college course. Elementary course for students beginning the study of chemistry. 2 lectures, 1 recitation and 2 hours laboratory practice. 4 points each half-year. Dr. Neish

7.30-9.50 P.M., Tu. and F., Room 301 Havemeyer. Credit I, IV. Fee \$20 each half-year

This course is a duplication of the day course A1-A2.

This course covers the requirements of the College Entrance Examination Board in chemistry. It is equivalent to Chemistry A; is accepted for admission to the Schools of Mines, Engineering and Chemistry, is prerequisite to the general inorganic chemistry at the College of Physicians and Surgeons and for advanced courses in Domestic Science. This course is a prerequisite for the other courses in chemistry given in the Evening Session and to the first-year chemistry in the Schools of Mines, Engineering and Chemistry.

e3-4—General inorganic chemistry. 3 hours classroom work and 6 hours' laboratory work. 5 points each half-year. Dr. Moore

7-9.50 P.M., M., W. and F., Room 309 Havemeyer. Credit I, IV, V. Fee, \$25 each half-year

This course, which presupposes a knowledge of general chemistry (eA), continues the study of general chemistry, with particular reference to giving a greater knowledge of descriptive chemistry and a more advanced and systematic discussion of general principles and their applications. It aims thus to prepare the student for the courses in organic chemistry or in qualitative analysis which follow. It is accepted as equivalent to Chemistry 3-4 required of all first-year students in the Schools of Mines, Engineering and Chemistry.

e41-42—Organic chemistry, elementary lecture course. 2 points each half-year. Dr. Fisher

8.20-9.35 P.M., Tu. and F., Room 413 Havemeyer. Credit I, IV, V. Fee, \$10 each half-year. An advanced course in Organic Chemistry will be given on request of fifteen students

Instruction will be given on both the aliphatic and the aromatic series of organic compounds, including the hydrocarbons, alcohols, ethers, organic acids, fats, waxes, soaps, cyanides, sugars and other carbohydrates, alkaloids, coloring matters, drugs, perfumes, etc. The lectures will be illustrated by material from the museum and as far as possible by experimental demonstration. This course is accepted as the equivalent of Chemistry 41–42 and is of especial advantage to students of pharmacy and medicine.

Open to students who have completed Chemistry e3-4.

Text-book: Perkin and Kipping's Organic Chemistry.

[e61-62—Qualitative analysis. 2 lectures and 5 hours laboratory. 5 points each half-year. Fee, \$25 each half-year. Not given 1912-13, but in 1913-14. Credit I, IV, V

This course, which presupposes only a knowledge of general chemistry (A), takes up the theory and practice of qualitative analysis as based upon the principles of physical chemistry, and will be accepted as equivalent to the course Chemistry 61 or 62 required of all first-year students in the Schools of Mines, Engineering and Chemistry.

Note.—Students who have previously completed the greater part of this course may, with the consent of the Director, register for the remainder, counting it 1 to 3 points.]

#### COURSES IN COMMERCE

#### Accounting

- e1-2—Elementary bookkeeping. Mr. KOOPMAN
- 7.30-9.20 P.M., S., Room 516 Schermerhorn. Fee, \$15 each half-year
- e3-4—Principles of accounting. 2 points each half-year. Mr. Boyce
  - 7.30-9.20 P.M., Th., Room 405 Kent. Fee, \$10 each half-year
- e5-6—Practical accounting. 2 points each half-year. Mr. Mont-Gomery
  - 7.30-9.20 P.M., F., Room 405 Kent. Fee, \$10 each half-year

#### Commerce

- e1-2—Principles of economics. 3 points each half-year. Professor Agger. Credit I, IV
  - 7.30-10 P.M., M., Room 503 Hamilton. Fee, \$15 each half-year
- **e3-4—Business organization and administration.** 2 points each half-year. Mr. Stevens
  - 7.30-9.20 P.M., S. Room 405 Kent. Fee, \$10 each half-year.

**e5-6—Commercial geography.** 2 points each half-year. Dr. McFarlane

7.30-9.20 P.M., M., Room 614 Kent. Fee, \$10 each half-year

**e7-8—Trade and transportation.** 2 points each half-year. Mr. Haig

7.30-9.20 P.M., W., Room 503 Hamilton. Fee, \$10 each half-year

e9-10—Business and social statistics. 2 points each half-year. Credit 1B. Professor Chaddock

7.30-9.20 P.M., W., Room 405 Kent. Fee, \$10 each half-year

#### Commercial Law

e1—Contracts. 2 points First half-year. Mr. WHITAKER 7.30-9.20 P.M., F., Room 614 Kent. Fee, \$10

**e2—Negotiable paper.** 2 points. Second half-year. Mr. Veness 7.30-9.20 p.m., F., Room 614 Kent. Fee, \$10

**e3—Agency.** 2 points. First half-year. Mr. Currier 7.30–9.20 p.m., Th., Room 614 Kent. Fee, \$10

### English

Commercial English. e1-2-Business English and commercial correspondence. Mr. Duncan

7.30–9.20 p.m., Tu., Room 303 Hamilton. Fee, \$15 each half-year e11a-12a—Public speaking. 2 points each half-year. Mr. Dow 7.30–9.20 p.m., W., Room 301 Hamilton. Fee, \$10 each half-year

#### Finance

- e1-2—Corporation finance. 2 points each half-year. Dr. Anderson 7.30-9.20 p.m., W., Room 516 Hamilton. Fee, \$10 each half-year
- e3-4-Money and banking. 2 points each half-year. Professor Agger

7.30-9.20 P.M., Th., Room 516 Hamilton. Credit I, IV. Fee, \$10 each half-year

e5-6—Insurance. 2 points each half-year. Mr. STEVENS 7.30-9.20 p.m., M., Room 516 Hamilton. Fee, \$10 each half-year

e7-8—Investments. 2 points each half-year. Mr. COPELAND 7.30-9.20 p.m., Tu., Room 516 Hamilton. Fee, \$10 each half-year

#### Industrial History

e155—The origins of European society. First half-year. Professor Shotwell

7.30-9.30 P.M., Tu., Room 615 Kent. Credit II, half course. Fee, \$10.

e156—Social and industrial history of modern England. Second half-year. Professor Shotwell

7.30-9.30 P.M., Tu., Room 615 Kent. Credit II, half course. Fee, \$10

Sociology

e151—Principles of sociology. First half-year. Mr. Shenton 7.30–9.20 p.m., M., Room 405 Kent. Credit II, half-course. Fee, \$10

e152—Historical evolution of society. Second half-year. Mr. Shenton

7.30-9.20 P.M., M., Room 405 Kent. Credit II, half course. Fee, \$10

Commercial Geography, (see p. 20)

Commercial Law, (see p. 20)

Construction, see Architecture (p. 15)

Contracts, (see p. 20)

Corporation Finance, (see p. 20)

Economics, (see p. 19)

#### **EDUCATION** \*

The following courses are given in Teachers College

# History of Education

Teachers College. Education Ba—History of education to modern times. 2 points. Professor Kilpatrick

9 A.M., S. Credit IV. Fee, \$15

Education 103-104—The educational theories of Herbart and Froebel. 4 points. Professor Kilpatrick 3 p.m., M. and W. Fee, \$30

# Philosophy of Education

Education 5—Logic as applied to problems of teaching. 2 points. Professor Dewey

5 P.M., M. and W. Fee, \$15

#### Educational Administration

Education 111-112—School administration. 4 points. Professor Dutton

4 P.M., Tu. and Th., with conferences to be arranged. Fee, \$30

<sup>\*</sup> The fees for hyphenated courses are given for the year. Students will register and pay fees at Teachers College for all courses in Education.

Education 113—Comparative education. 3 points. Professor FARRINGTON

Section II. 4-5.40 P.M., M. and F. Fee, \$22.50. Requires a registration of ten

Education 113a-114a—American education and social institutions. 4 points. Professors Farrington and Hillegas 4-5.40 p.m., W. Fee, \$30

### Educational Psychology

Education 21-22—The psychology of childhood. 4 points. Professor Norsworthy

2 P.M., Tu. and Th. Fee, \$30

Education 117-118—The application of experimental and physiological psychology to education. 4 points. Professor Ruger 4 P.M., M. and W. Fee, \$30

Education 124—The psychology of the elementary school subjects. 2 points. Professor Thorndike 2 p.m., W. Fee, \$15

#### Secondary Education

Education 127-128—Secondary education. Advanced course. 6 points. Professors Sachs and Stevens 4 p.m., M., W. and F. Fee, \$45

Education 129-130—The conduct of the recitation in secondary schools. 4 points. Professor Stevens 2 p.m., M. and W. Fee, \$30

# Elementary Education

Education 131ab-132ab—Theory and practice of teaching in elementary schools. Class work, 4 points. Professor Hillegas 9-11 a.m., S. Fee, \$30

Education 133-134—Criticism and supervision of instruction in the elementary school. 4 points. Professor McMurry 9-11 A.M., S. Fee, \$30

# Kindergarten Education

Education 41-42—Kindergarten principles. 4 points. Professor Fulmer

2 P.M., Tu. and Th. Fee, \$30

Education 43-44—Institutions for the conservation of childhood. 4 points. Miss ATKINSON

5 P.M., Tu. and Th. Fee, \$30

Education 45-46—Theory and practice of Kindergarten teaching. 4 points. Professor Fulmer

3 P.M., M. and F. Fee, \$30

Education 47-48—The primary school—its methods and subjectmatter. 4 points. Miss Moore

3 P.M., Tu. and Th. Fee, \$30

Education 49a-50a—Literature in the Kindergarten and primary grades. 2 points. Miss Moore

9 A.M., S. Fee, \$15

Education 145-146—Curricula for Kindergarten normal schools and problems in Kindergarten supervision. 6 points. Professor Hill

4 P.M., M. and W. Fee, \$45

Kindergarten 1-2—Gifts and occupations. 4 points. Miss Suther-LAND and Miss Abbot

2 P.M., M., W. and F. Fee, \$30. Laboratory fee, \$5

Kindergarten 3-4—Songs and games. 4 points. Miss Sutherland and Miss Abbot

3 P.M., Tu., Th. and F. Fee, \$30

Kindergarten 7-8—Gifts and occupations. 4 points. Professor Fulmer

4 P.M., Tu. and Th. Fee, \$30. Studio fee, \$1

**Kindergarten 7a-8a—Kindergarten occupations.** 2 points. Professor Fulmer

11 A.M., S. Fee, \$15. Studio fee, \$1

Kindergarten 53-54—Industrial and constructive occupations. 4 points. Professor Hill, Miss Garrison and Miss Brown

4-6 p.m., F. Fee, \$30. Laboratory fee, \$2

An Announcement of the School of Education of Teachers College, outlining courses in the theory and practice of teaching Biology, English, Fine Arts, French, Geography, German, Greek, History, Latin, Mathematics, Music, Nature Study, Physical Education and Physical Sciences, and of the School of Practical Arts, describing the regular and the special classes of that School in foods and cookery, sewing and textiles, household administration, nursing and health, household chemistry, fine arts, music, physical education, wood-working, metal-working, drawing, design, etc., may be obtained on application to the Secretary of Teachers College.

### Electrical Engineering

e1—Elements of electrical engineering. Lectures and laboratory. First half-year. Mr. Hehre

7.30-9.10 P.M., M. and Th., Room 302 Engineering. Fee, \$20

Designed to give the student a general knowledge of the principles of electricity and magnetism.

Prerequisites: Algebra, elementary chemistry and physics. Students should consult the instructor as to these prerequisites.

**e2—Principles of dynamo-electric machinery.** Second half-year. Mr. Hehre

7.30-9.10, M. and Th., Room 302 Engineering. Fee, \$20

Designed to give the student a knowledge of the construction and characteristics of dynamo-electrical machinery with particular reference to direct-current generators and motors. Examples of the apparatus discussed will be shown and experimentally demonstrated.

Prerequisite: Electricity el.

### Civil Engineering

e1-2—Theory of plane surveying. For first-year students in the Schools of Mines, Engineering and Chemistry. 2 points each half-year. Mr. Finch

7.30-9.10 P.M., W., Room 402 Engineering. Credit I, IV, V. Fee, \$10 each half-year

First half-year—General principles of surveying and surveying instruments: Units and measurements. Errors and limits of precision. Tapes and measurement of distance. The vernier and level bubble. The compass, magnetic declination and variation, local attraction, etc. The wye and dumpy levels, theory of leveling, rods, etc. The engineer's transit, measurement of angles, azimith and traversing.

Second half-year—Surveys and computations: Land surveying, including farm, city and public land surveys, computation of coördinates and areas, parting off land, descriptions, relocation, etc. Topographic surveying, transit and stadia method, theory and reduction of stadia measurements, the plane table and government work. Hydrographic, mine and construction surveys.

Prerequisite: Plane trigonometry; also first half-year prerequisite for second half-year.

Text-book: Tracy's Plane Surveying.

### eX1-X2—Theory of railroad surveying. Mr. Finch

7.30-9.10 P.M., M., Room 402 Engineering. Fee, \$10 each half-year

Railroad location in general. The relation of railroad surveys to the problem of railway location. The object of the Reconnaissance, preliminary and final locations and outline of methods used. The permanent way. Field work: Simple curves. Compound curves. Reverse curves. Transition curves. Frogs and switches. Turnouts and cross-overs. Yard work. Cross-sectioning. Office work: The profile. Computation of earthwork. The mass curve for the proper distribution of earthwork. Estimates of cost.

Two hours a week partly lecture and partly problem work. Students will be required to work out numerous practical problems in connection with the theoretical work.

Prerequisites—Plane surveying, trigonometry, algebra. Text-book, Nagle, Field Manual for Railway Engineers.

# e**Y1-Y2**—Plain and reinforced concrete construction. Mr. Finch

7.30-9.10 P.M., Th., Room 402 Engineering. Fee, \$10 each half-year

First half-year—Historical, advantages, use and limitations. Cement, mortar and proportioning concrete. Mixing, depositing, forms and finish. Properties and strength of cement and concrete. Reinforced concrete, theory of rectangular and "T" beams and columns. Systems of reinforcement and specifications.

Second half-year—Theory, design and construction. Retaining walls, dams, bins and tanks. Culverts and arches. Pipes, conduits and sewers. Girders, trestles and bridges. Buildings and concrete blocks. Fences and other structures.

Prerequisites: Mechanics and Drafting or equivalent, also first half-year prerequisite for second half-year.

Reference book: Taylor and Thompson, Concrete Plain and Reinforced.

# English

### eV1-V2-English for foreigners. Mr. DUNCAN

7-7.50 P.M., M. and Th., Room 203 Hamilton. Fee, \$15 each half-year

This course is designed to familiarize foreigners with English idiom and to give them practice in the use of the English language. It will take account of both pronunciation and grammar.

### eW1-W2-English grammar and composition. Mr. Duncan

6.10-7 P.M., M. and Th., Room 203 Hamilton. Fee, \$15 each half-year This course is intended for mature students who desire to acquire a thorough knowledge of the elementary principles of English grammar. After a rapid review of the parts of speech and their modifications, a detailed treatment of word elements, phrase elements and clause elements and their relations in sentences will be given. Much time will be devoted to the analysis and synthesis of different types of sentences. Punctuation will be regarded as a system of points to denote grammatical relations, and thus considerable attention will be given this subject. One-page compositions on subjects drawn from life and from the experience of the students will be required regularly.

Students who contemplate taking College Entrance English, either eX1-X2 or eY1-Y2, will find this course helpful.

eX1-X2—College entrance English. Books for reading. Reading of texts, themes, conferences, tests, lectures, special oral reports, discussions. Dr. Gaston

4.30-5.45 P.M., M. and Th., Room 502 Hamilton. Fee, \$20 each half-year

This course is designed to aid in preparing for English a, as required for admission to College and to the Schools of Mines, Engineering and Chemistry. Each week certain texts will be read and themes prepared. The successful completion of this course will count toward the removal of entrance conditions in English.

eY1-Y2—College entrance English. Books for study. Study of texts, themes, tests, lectures, discussions. Fee, \$15 each half-year

Sec. 1—4.30-5.50 P.M., W., Room 502 Hamilton. Mr. MITCHILL

Sec. 2—7-8.20 P.M., W., Room 502 Hamilton. Mr. Duncan

This course is designed to aid in preparing for English b, as required for admission to College and to the Schools of Mines, Engineering and Chemistry. The successful completion of this course will count toward the removal of entrance conditions in English.

eA1-A2—English composition. Lectures, themes and conferences. 3 points each half-year. Dr. Wolff

7-8.15 P.M., M. and Th., Room 502 Hamilton. Credit I, IV. Fee, \$15

each half-year

This course corresponds to English A in Columbia College. Students are expected to confer regularly with the instructor at times to be appointed within the conference period—8.15-8.45. No other engagement should be made for this half-hour.

eA3-A4—English composition. Lectures, themes and conferences. 1½ points each half-year. Dr. Wolff

9-10.15 a.m., S., Room 202 Hamilton. Credit I, IV. Fee, \$7.50 each half-year

This course is equivalent to one-half of English A. It is offered for teachers and students who desire to gain a knowledge of the principles of rhetoric and English composition as they are now taught in the colleges.

Two one-page themes or one three-page theme a week will be called for. Students are expected to confer regularly with the instructor at times to be appointed within the conference period—10.15-10.45. No other engagement should be made for this half-hour.

eB1-B2—English literature and composition. Lectures, themes and conferences. 2 points each half-year. Dr. Wolff

8.45-9,35 P.M., M. and Th., Room 502 Hamilton. Credit I, IV. Fee, \$10 each half-year

This course corresponds to English B in Columbia College.

e1a-2a—English composition. Advanced course. Lectures, themes, and theme criticism. 1½ points each half-year. Dr. Wolff

11-12.15 A.M., S., Room 202 Hamilton. Credit I, IV. Fee, \$7.50 each half-year

Open to students who have passed English  $\bf A$  with high standing or to special students of maturity. This course presumes a knowledge of formal rhetoric and training in the essentials of composition, correctness and precision. From two to four pages of manuscript (250-500 words) are required each week.

e1b-2b—The short story. English composition. Theory of fiction writing. Mr. PITKIN

10.20-11.35 A.M., S., Room 617 Hamilton. Fee, \$15 each half-year.

In this course story writing is studied from the point of the literary critic and also as far as possible from that of the writer. Details of construction will be investigated and the student called upon to contrive plots, depict characters and incidents and to write at least three stories of over 3,000 words each during the year. No special previous training is required but those wishing to enter the course must submit during the first week a story or sketch of not more than 5,000 words as evidence of competency.

e1c-2c—The short story. English composition. Theory of fiction writing. Mr. PITKIN

11.45 A.M.-1 P.M., S., Room 617 Hamilton. Fee, \$20 each half-year

This course is open only to the following students: those who have done promising work in 1b-2b; those who have not completed 1b-2b but submit at the outset a story of evident merit; and those graduate students specializing in English composition who wish advanced training in theory and criticism.

e11a-12a—Public speaking. 2 points each half-year. Mr. Dow 7.30-9.20 p.m., W., Room 301 Hamilton. Credit IV. Fee, \$10 each half-year

This course will deal with public address. Its aim is to give practical training to men and women of whom speaking is demanded in their profession. The first hour will be given to the delivering of prepared speeches, the second to special training before the class.

e17-18—Modern literature, English and foreign. 2 points each half-year. Mr. Steeves

7.30-8.20 P.M., Tu. and F., Room 503 Hamilton. Credit I, IV. Fee, \$10 each half-year

This course is a general survey of the principal current literary types, tracing their characteristics from the influences prevalent in the Victorian period and giving attention to foreign artistic sources and parallels. The course requires extended and rapid outside reading of a weekly average of possibly three hundred or four hundred pages. The required reading can generally be found in the branch libraries of the New York Public Library.

e19-20—The history of American literature. 2 points each halfyear. Dr. Van Doren

9-10.40 A.M., S., Room 507 Hamilton. Credit I, IV. Fee, \$10 each half-year

The course furnishes an account of literary production in America from the beginning to the present day. Special attention is given to literary movements in their relation to the political and social background. Assigned readings in important authors will supplement lectures and recitations.

e23a-24a—Typical forms of English literature. 2 points each halfyear. Professor Tucker

10.40-12.20 A.M., S., Room 509 Hamilton. Credit I, IV. Fee, \$10 each half-year

e31–32—Fourteenth century literature. 2 points each half-year. Introductory lectures. Dr. Patterson

4.10-5.50 P.M., W., Room 503 Hamilton. Credit I, IV. Fee, \$10 each half-year

Study of selections from Chaucer and other writers of the period.

e35a-36a—Shakspere. 2 points each half-year. Professor Tassin 4.-5.40 p.m., Th., Room 503 Hamilton. Credit I, IV. Fee, \$10 each half-year

An introduction to the study of Shakspere, the condition and character of his life and work and the technic of his plays studied from the dramatic rather than from the literary point of view.

e41a-42a—Contemporary dramatic literature. 2 points each halfyear. Mr. Hamilton

10-11.40 A.M., S., Room 214 Hamilton. Fee, \$10 each half-year

In this course study will be made of representative works of the leading modern dramatists from Victor Hugo to Sir Arthur Pinero. Special attention will be devoted to the evolution of contemporary stagecraft. The best new plays presented during the current theatre season in New York will also be analyzed from the point of view of the dramatic critic. The course will be especially helpful to students who desire subsequently to write plays or to write dramatic criticism; it will bring the actual theatre of today within the reach of academic study.

e49a-50a—Sentence analysis. 1 point each half-year. Miss Cook 10-10.50 A. M., S., Room 305 Philosophy. Credit IV. Fee, \$7.50 each half-year

A course in English syntax designed for students and teachers of English grammar. The sentence is the unit of attention, and the relations of its elements are carefully studied. Discussion of the most desirable forms of oral analysis, and of written topical analysis. Especial attention to sentence study in the schools.

Text-book: L. G. Kimball, The English Sentence (Am. Book Co.).

# e51a-52a—English phonetics. Dr. Robinson

11-12.30 A. M., S., Room 305 Philosophy. Fee, \$10 each half-year

This course will develop the principles of spoken English and outline methods of applying those principles to all the school work that is conducted orally as well as to the improvement of the teacher's power of expression. The following topics will be covered: 1. Elocution: or the philosophy of expression; the development of the faculty of speech; the voice as a means of expression, interpretive reading, breath control and voice management. II. English phonetics: analysis of the sounds of spoken English, physiology of their production and methods of correcting speech defects; English to foreigners. This is of especial value to teachers of special classes. III. Reading: physiology and psychology of reading; analysis of modern reading methods and class-room devices for teaching reading.

# e61a-62a—Oral composition in elementary schools. 1 point each half-year. Miss Соок

11-11.50 A.M., S., Room 508 Philosophy. Credit IV. Fee, \$7.50 each half-year.

This course involves (a) the study and application of the principles of composition and expression to oral exercises; and (b) the organization of material of composition to this end. The aim of the course will be to train the teacher in the kind of work required by the newer methods of composition teaching.

Subjects for discussion includes the use of stories, pictures and objects as incentives to speech; the development of topics and dialogues; the massing of material; sentence form and variety. Practical work in oral composition, and lessons showing selection and use of original material will be required.

# Commercial English e1-2—Business English and commercial correspondence. Mr. Duncan

7.30-9.20 P.M., Tu., Room 303 Hamilton. Fee, \$15 each half-year

(For description of course see Announcement of Courses in Commerce, Accounts and Finance which will be sent upon request

Finance (see p. 20)

#### Fine Arts

# e51-52—Introduction to the history of art: Ancient, Mediæval, Renaissance, Modern, and Oriental. 1½ points. Mr. Smith

8.20-9.10 P.M., F., Avery Library. Credit IV. Fee, \$10 each half-year.

This course will cover the development of the arts of painting and sculpture. and, to a limited extent, of the derived and dependent arts. The point of view will be historical, noting the appearance and growth of national characteristics, and of the artistic types which express these characteristics. The history of art will be shown not so much in the succession of monuments as in the development of style. It is especially desired to make the course useful to practical people—painters, sculptors and designers. Students who are able to draw will be given opportunity to illustrate their notes with sketches of typical and important works. Attention will be given to methods and processes, carving, modelling, fresco, etc. The large resources of the Avery Library will be available for reference and will furnish abundant illustration.

### French (see p. 43)

### Geology

The courses in Geology will be given under the direction of Professor Grabau who will occasionally meet the classes.

e1-General geology—A general introduction to the subject of geology. 3 points first half-year. Mr. Hintze

7.30-9.10 P.M., Tu. and F., Room 401 Schermerhorn. Credit IC, IV. Fee, \$15

This course covers an introduction to the common rocks, their structure, origin and occurrence in nature; weathering of rocks and its products, geological activities of the air, the streams and the sea; characteristics and work of glaciers, volcanoes and earthquakes.

The laboratory work consists of a study and identification of common rocks, drawing of structure sections, interpretation of topographical maps, etc. There will be several field trips on Saturday afternoons.

No prerequisite. Equivalent to Geology 1 in Columbia College. A knowledge of elementary chemistry is desirable.

Text-book: Chamberlin and Salisbury, College Geology.

e2-Historical geology—The origin of the earth and its development—succession of plant and animal life. 3 points second half-year. Mr. HINTZE

7.30-9.10 P.M., Tu. and F., Room 401 Schermerhorn. Credit IC, IV. Fee, \$15

This course deals with the origin of continents and ocean basins and their development during successive geologic periods, characteristic sections and their interpretations, study of important types of fossils as indications of geologic age; the glacial period and the antiquity of man; development of surface features or physiography.

The laboratory work consists of the study of maps, sections and fossils, followed by work with physiographic models. There will be several excursions on Saturday afternoons in the spring.

Prerequisite, Geology 1 or Geology e1 or s1.

Text-book: Chamberlin and Salisbury, College Geology; Grabau, Syllabus of Historical Geology

e25-26—Elementary conchology. An introduction to the scientific study of shells. 2 points each half-year. Miss O'CONNELL

9.30-12 A.M., S., Room 101 Schermerhorn. Credit IV. Fee, \$10 each half-year

A study of the structure, relationships and geographical distribution of the shells of modern mollusks, with practice in the identification of modern and Tertiary species. This course is intended to give the students some acquaintance with the development of shells and to enable him to identify them with the aid of literature on the subject. All the common shells of the Atlantic coast from Maine to Florida will be studied, and the large series of modern and Tertiary shells from all parts of the world in the collection of the department will be freely used. Excursions for the collection of our local shells will be made.

The first half-year will be devoted to a study of bivalves of Pelecypoda, and the second half-year to Gastropoda and Cephalopoda.

No preparation is required but an elementary knowledge of zoology is desirable. Minimum number of students three.

Text-book: Woodward, Manual of the Mollusca.

### German

eA1-A2—Elementary course. 3 points each half-year. Credit I,IV. Fee, \$15 each half-year

Sec. 1. 4.30-5.45 P.M., Tu. and F., Room 402 Hamilton. Professor Heuser

Sec. 2-8.35-9.50 P.M., M. and Th., Room 402 Hamilton. Dr. PORTERFIELD

This course familiarizes the beginner with the common vocabulary and the fundamental grammatical facts of the language so as to enable him to read easy German at sight. Reading forms part of the work from the beginning, together with grammar study, easy exercises in composition, and a considerable amount of colloquial practice in the phrases of everyday life. Although this course is intended for beginners it may be taken with profit by those who have some previous knowledge of the language but are deficient in grammar.

Text-books: Thomas, Practical German Grammar, 4th edition (Holt); Hervey Supplementary Exercises to Thomas's Grammar, 4th edition (Holt); Guerber Märchen und Erzählungen (Heath).

Prerequisite to eA2: eA1, eA3-4, or sA1 and sA2. For course eA1 no previous knowledge of German is required.

Course eA2 completes the college entrance requirement in Elementary German

eA3-A4—Elementary course. Equivalent to course eA1. 1½ points each half-year. Mr. M. G. BACH

10-11.15 A.M., S., Room 307 Hamilton. Credit I, IV. Fee, \$7.50 each half-year

This course, continuing throughout the year, is equivalent to course  $e\mathbf{A1}$ . The student may complete the requirement in Elementary German for college entrance or for a degree by taking  $e\mathbf{A2}$ ,  $e\mathbf{A5}$ — $\mathbf{A6}$ , or (if specially proficient in  $e\mathbf{A3}$ — $\mathbf{A4}$ )  $e\mathbf{A3}$ . Prerequisite to  $e\mathbf{A4}$ :  $e\mathbf{A3}$  or  $e\mathbf{A1}$ . For course  $e\mathbf{A3}$  no previous knowledge of German is required.

eA5-A6—Elementary course. Equivalent to course eA2. 1½ points each half-year. Mr. M. G. Васн

11.30-12.45, S., Room 307 Hamilton. Credit I, IV. Fee, \$7.50 each half-year

Prerequisite, eA1, eA3-A4 or sA1 and sA2.

This course, continuing throughout the year, is equivalent to course eA2.

eA8—Elementary course. 3 points second half-year. Mr. Bechert. Credit I, IV. Fee, \$15

4.30-5.45 P.M., Tu. and F., Room 408 Hamilton

Equivalent to eA1 of the first half-year (for description, see above); will be followed by eA9 (equivalent to eA2), to be given the first half-year in 1913-14.

eB1-B2—Intermediate course. 3 points each half-year. Mr. Schulze

4.30-5.45 P.M., Tu. and F., Room 406 Hamilton. Credit I, IV. Fee, \$15 each half-year

This course is intended for students who have satisfied the college entrance requirement in Elementary German or have taken course eA1-A2 or an equivalent. Course eB2 completes the requirement in Intermediate German for college entrance or for a degree.

The work of this course includes the reading (partly at sight) of about five hundred pages of moderately difficult prose and verse by standard modern and classical authors; grammatical instruction, beginning with a rapid review of the elements and embracing the fundamental principles of syntax and word-formation; exercises in composition and free reproduction, oral and written, with some colloquial practice. The texts studied will be selected with reference to variety of style and vocabulary and will include Lessing's Minna von Barnhelm, Heine's Harzreise, and Schiller's Wilhelm Tell.

Prerequisite, eA2, eA5-6, or sA3, or an equivalent.

Students will require at the beginning of this course Eckstein's Der Besuch im Karzer and Wildenbruch's Das edle Blut, edited (in one vol.) by H. C. Sanborn (Ginn), and Thomas, Practical German Grammar (Holt).

eB3-B4—Shorter intermediate course. 2 points each half-year. Professor Braun

9-10.40 A.M., S., Room 408 Hamilton. Credit I, IV. Fee, \$10 each half-year

This course is equivalent in hours to two-thirds of eB1-B2 and includes the more important work of the longer course, with a smaller amount of reading (about 350 pages) and of practice in writing and speaking. Students proficient in this course are able to pass the college entrance examination in Intermediate German. If supplemented by course e3-4 or s3-4 it will be accepted in satisfaction of the intermediate requirements for admission for a degree.

Prerequisite, as for course eB1-B2.

e3-4—Composition and oral practice. Intermediate course.  $1\frac{1}{2}$  points each half-year. Mr. Bechert

11-12.15 A.M., S., Room 406 Hamilton. Credit I, IV. Fee, \$7.50 each half-year

This course aims to meet the demand for instruction looking toward a practical command of the German language. It is intended for students who possess an elementary reading knowledge (the equivalent of Course eA2 or eA6), but pre-

vious practice in oral expression is not regarded as a prerequisite. The course may be taken with advantage by students who are taking, or have taken, eB1-B2 or eB3-B4.

From the outset simple German will be employed as far as possible by instructor and student alike. The subjects pursued and the methods employed will depend in large measure upon individual needs. The conversation will be based upon easy German narrative prose, short poems and so far as may be practicable, upon daily life and current events, and will be supplemented with frequent dictation exercises. The composition work will consist of translations into German and of original themes upon subjects discussed in class.

e5-6—Introduction to the classics. Selected works of Goethe, Schiller and Lessing. 2 points each half-year. Professor Heuser

9-10.40 a.m., S., Room 406 Hamilton. Credit I, IV. Fee, \$10 each half-year

This course aims to make the student familiar with representative works of the classical period and the outlines of its history, and to increase the student's command of vocabulary and idiom by means of supplementary sight reading and by interpretation of the text without the medium of translation.

The course will include the reading and study of two dramas of Lessing, Goethe and Schiller, with brief discussion of other works in connection with assigned private reading.

Prerequisite; eB2, eB4, or an equivalent.

Text-books required at the beginning: Lessing's *Emilia Galotti*, edited by Winkler (Heath); Rolleston's *Life of Lessing*, published in the "Great Writers" series (Walter Scott, London).

e11-12—Composition and oral practice. Advanced course. 1½ points each half-year. Professor Braun

11-12.15 A.M., S., Room 408 Hamilton. Credit I, IV. Fee, \$7.50 each half-year

Intended to continue the work of course e3-4 or s3-4, but has at the same time a distinctly literary content. It presupposes a good reading knowledge and fair ability to understand the spoken language. The course will be conducted wholly in German. The conversation will be upon topics chosen from the field of literature, daily life and current events. The composition work will consist in the rendering of outlines of the literature read and in the preparation of original themes.

Students will require at the beginning of this course Buchheim, Balladen und Romanzen (Macmillan).

#### Hebrew

e1-2—Biblical Hebrew. Elementary course. Grammar and selections from Pentateuch and Psalms. 2 points each half-year. Mr. Mar-GOLIS

4.10-5 P.M., Tu. and F., Room 501 Hamilton. Credit I. Fee, \$10 each half-year

#### History

eA1—The foundations of modern Europe. Lectures, readings and discussion. 3 points first half-year. Dr. Humphrey

8.20-9.35 P.M., M. and Th., Room 406 Hamilton. Credit I, IV. Fee \$15

After a brief survey of the contributions of the ancient world and of the middle ages to European civilization, the course will deal with important political, economic and intellectual achievements from the fifteenth to the eighteenth centuries. It will treat of the so-called Renaissance, the spirit of reform and of revolt, the expansion of Europe, monarchy by divine right and the various aspects of the "old regime."

Text-book: Robinson and Beard, Development of Modern Europe, 2 vol.

This course is equivalent to History A1 as given in Columbia and Barnard Colleges.

eA2—Modern and contemporary history. Lectures, readings and discussion. 3 points second half-year. Dr. Humphrey

8.20-9.35 P.M., M. and Th., Room 406 Hamilton. Credit I, IV. Fee, \$15

This course is designed as an introduction to current national and international problems. The principal topics will be the intellectual achievements of the eighteenth century, the French Revolution with reference to political and economic changes, the work of Napoleon in reforming France and in reshaping the map of Europe, the Industrial Revolution, the development of Italian and German unitythe third French Republic, the rise of Russia, modern social problems and imperial, ism in Africa and the Orient.

Text-book: Robinson and Beard, Development of Modern Europe, 2 vols.

This course is equivalent to History A2 as given in Columbia and Barnard Colleges.

eA7—Mediaeval history; the chief political, economic and intellectual achievements. Lectures, readings and discussions. 3 points first half-year. Mr. Fox

8.20-9.35 P.M., Tu. and F., Room 402 Hamilton. Credit I, IV. Fee, \$15

The central idea in this course will be the development of European civilization to the seventeenth century. Among the subjects treated will be the cultural contributions of antiquity, the organization of the Roman empire, feudalism, the rise and influence of the Christian Church, Mohammedanism and the Crusades, the development of national monarchy, mediaeval culture and the so-called Renaissance, and the political and religious aspects of the Protestant movement.

Text-book: Robinson, History of Western Europe.

This course is the equivalent of History A1 as given in Columbia and Barnard Colleges prior to 1912.

e11a-12a—English history. 2 points each half-year. Mr. Green 11-12.40 a.m., S., Room 402 Hamilton. Credit I, IV. Fee, \$10 each half-year

The events of the Middle Ages will be passed over rapidly and connected with the political, economic and religious circumstances of modern England. Particular attention will be given to constitutional development, colonial expansion, and the industrial revolution, with the problems which came in its train. The lectures will be supplemented with discussion in class.

Text-books: Cheyney, Short History of England; Beard, Introduction to the English Historians; and assigned reading in other books will be used as the basis of discussion in class.

e15-16—American history. 2 points each half-year. Professor Schuyler

9.10-10.50 a.m., S., Room 516 Hamilton. Credit I, IV. Fee, \$10 each half-year

A general survey of American history from the Age of the Discoveries to the present. Among the more important topics treated are: Old-World conditions which explain the colonization of North America; European institutions in America; the revolt of the colonies from England; the attempt at union under the Articles of Confederation; the formation of the Constitution and the Pederalist System; the revolution of 1800; European complications; the growth of national consciousness; immigration and democracy; the slavery question and abolition; the development of sectionalism; westward expansion and the War with Mexico; slavery in the territories; the Republican Party; the election of 1860 and Secession; the Civil War; Reconstruction; railroads and the opening of the West; Civil Service Reform; the currency and the tariff; the War with Spain; recent problems.

Text-book: Elson, History of the United States.

e149-150—The French Revolution and the Napoleonic era. Lecture study course. Half-course, each half-year. Professor Muzzey

Lecture 4.20-5.10 P.M., Conference 5.10-6 P.M., W., Room 305 Philosophy. Credit for those taking both hours II, IV. Fee, \$10 each half-year

The object of this course will be to study the French Revolution in its broad social, economic and religious aspects as well as in its dramatic political character. Particular stress will be laid on the conditions of the 18th century France which led to the Revolution, and the features of the Revolution which permanently remedied those conditions. The constructive work, both of the men of 1789 and of Napoleon, will be emphasized more than the episodes of the Revolution.

e155—Industrial history. The origins of European society.

Lecture study course. Half-course, first half-year. Professor Shotwell Lecture 7.30–8.20 p.m., conference 8.20–9.30 p.m., Tu., Room 615 Kent. Credit for those taking both hours, II, IV. Fee, \$10

This course deals with the evolution of European society, with especial emphasis upon the history of work and of the common things of daily life. It begins with a survey of pre-historic man, the stone, bronze and early iron ages, the rise of agriculture, the ancient city states, commerce and slavery. It passes in review early German village life, the rise of feudalism, the management of manorial estates, the rise of European cities, the emergence of capital and the role of the Jewish bankers of the Middle Ages, the origins of the national state and the beginnings of world commerce.

e156—Industrial history. Social and industrial history of modern England. Lecture study course. Half-course, second half-year. Professor Shotwell

Lecture 7.30-8.20 P.M., conference 8.20-9.30 P.M., Tu., Room 615 Kent. Credit for those taking both hours II, IV. Fee, \$10

This course begins with a short survey of the Commercial Revolution which changed the centre of European society from the Mediterranean to the North, the sea route and its influence upon Portugal, Holland, Spain, England and France. It traces the great change in prices due to the influx of gold and silver from America, and treats of the bearing of this upon such movements as the Protestant Reformation. The Industrial Revolution is then taken up in detail, the great inventions

are described and the rise of the factory system. The course then considers the advent of the industrial proletariat and includes a survey of popular movements toward reform, Chartism, social legislation, Trade Unions and the historical setting of Socialism.

Insurance (see p. 20)
Investments (see p. 20)
Italian (see p. 45)

#### Latin

eA1—Collegiate Latin. Livy (Books xxi-xxii); Terence, Phormio. 3 points first half-year. Dr. Guernsey

4.30-5.45 P.M., M. and Th., Room 509 Hamilton. Credit I, IV. Fee, \$15

eA2—Collegiate Latin. Horace, Odes and Satires; Catullus. 3 points second half-year. Dr. Guernsey

4.30-5.45 P.M., M. and Th., Room 509 Hamilton. Credit I, IV. Fee, \$15

eX1-Elementary Latin. First half-year. Miss WyE

7-8.30 P.M., Tu. and F., Room 511 Hamilton. Credit IV. Fee, \$20

The aim of this and the succeeding courses of the three-year cycle is to teach students to read, write and speak the language readily and accurately. To this end the work will be conducted in strict accordance with the principles of the Direct Method. There will be constant drill in the use of forms in oral and written work and systematic study of syntax and vocabulary, but translation from one language to the other will be deferred until the student has a sound knowledge of the elements of Latin.

No previous knowledge of Latin is required for this course. Text-book: Paine, First Latin Course (Clarendon Press)

eX2—Caesar, Nepos and prose composition. Second half-year. Miss WyE

7-8.30 р.м., Tu. and F., 511 Hamilton. Credit IV. Fee, \$20

The amount and scope of the reading in this course and in the supplementary courses eY1-Y2 will follow closely the recent recommendations of the Cleveland Commission on Entrance Requirements in Latin. Great stress will be laid upon free composition and oral work. There will be occasional exercises in translation. Prerequisite, eX1.

Text-books: Teubner text editions of Caesar's Gallic War and the Lives of Nepos; Atlas of Ancient and Classical Geography, Smith-Blakeney Classical Dictionary (Everyman's Library.)

eY1—Ovid and Vergil. First half-year. Miss WYE Sec. 1-4.30-6 P.M., M. and Th. Room 511 Hamilton

Sec. 2-7-8.30 P.M., M. and Th., Room 511 Hamilton. Credit IV. Fee, \$20

The aim of this course is to introduce the student to the study of Latin poetry. Attention is therefore centered upon the qualities which distinguish prose from verse—range of ideas, metrical form and poetic diction. Exercises in English translation will be more frequent than in the preceding course. Occasional summaries in Latin will be required.

Prerequisite, eX1-X2.

Text-books: Gleason, A Term of Ovid; Harper and Miller, Vergil's Aeneid (American Book Company.)

eY2-Cicero and Sallust. Second half-year. Miss WYE

7-8.15 p.m., M. and Th., Room 511 Hamilton. Credit IV if taken in conjunction with eY4. Fee, \$20

In this course the orations for the Manilian Law and for Archias will be read together with the account of the Catilinarian conspiracy as it appears in Sallust's Catiline and in the Catilinarian orations.

Prerequisite, eX1-X2.

Text-books: Text editions of Sallust's Catiline and the six orations of Cicero specified; Strachan-Davidson, Cicero (Putnam)

#### eY3-Latin prose composition. Miss Wye

4.10-5 P.M., Tu. and F., first half-year. Room 511 Hamilton. Credit IV if taken in conjunction with e**Y2.** Fee, \$10

#### eY4—Course eY3 repeated

8.20-9.10 P. M., M. and Th., second half-year. Room 511 Hamilton

This course is designed to give a thorough review of the material which is ordinarily included in the high school course in Prose Composition.

Prerequisite, eX1-X2.

Text-books: Barss, Writing Latin, Book II; Gildersleeve, Latin Grammar (Heath).

eY5-Y6—Readings in Latin literature. 2 points each half-year. Miss WyE.

5.10-6 P.M., Tu. and F., Room 511 Hamilton. Credit IV. Fee, \$10 each half-year

This course will consist of readings from Latin authors in chronological order, accompanied by parallel reading in the various histories of Latin literature. Translation into English will be incidental only. The course is designed to meet the needs of students who, after completing the cycle of eX1-X2, eY1-Y2, are desirous of a course that gives a general view of the literature. It furnishes opportunity also for students to secure practice under guidance in speaking and reading the language aloud.

# Law (commercial) (see p. 20)

#### Mathematics

eX1—Algebra, elementary and intermediate course (complete). First half-year. Mr. Simpson

6-7.15 P.M., M., Tu., Th., F., Room 214 Hamilton. Fee, \$25.

This course covers elementary algebra to quadratics and beyond. It includes the fundamental operations, factoring, fractions, ratio and proportion, quadratics binomial theorem (simple forms), progressions, and graphical methods.

Text-book: Wentworth's New School Algebra.

eX2—Algebra. Course eX1 repeated. Second half-year. Mr. SIMPSON

7-8.15 P.M., M., Tu., Th., F., Room 214 Hamilton. Fee, \$25

This course covers elementary algebra to quadratics and beyond. It includes the fundamental operations, factoring, fractions, ratio and proportion, quadratic binomial theorem (simple forms), progressions and graphical methods.

Text-book: Wentworth's New School Algebra.

e**Y1—Plane geometry** (complete). First half-year. Mr. McMackin 7.20-8.10 p.m., M., Tu., Th., F., Room 214 Hamilton. Fee, \$20

The first five books of Wentworth's Geometry, including rectilinear figures, the circle, proportion, areas of polygons, regular polygons and circles.

Text-book: Wentworth's Geometry (Wentworth's and Smith's revision)

eY2—Plane geometry. Course eY1 repeated. Second half-year. Mr. McMackin

6-6.50 P.M., M., Tu., Th., F., Room 214 Hamilton. Fee, \$20

The first five books of Wentworth's Geometry including rectilinear figures, the circle, proportion, areas of polygons, regular polygons and circles.

Text-book: Wentworth's Geometry (Wentworth's and Smith's revision)

eZ1—Plane geometry and trigonometry. First half-year. Mr. McMackin

3-4 P.M., M., Tu., W., Th. and F., Room 202 Hamilton. Fee, \$25

This course will be preceded by a general review of plane geometry.

The elementary principles of logarithms and the use of tables of logarithms are presented. The course includes the definitions and relations of the trigonometric functions, the deduction of important analytical formulæ and application of the theory to the solution of plane triangles, trigonometric equations, etc.

Elementary algebra through the quadratic equation is presupposed.

cA1—Trigonometry and algebra. 3 points. First half-year. Mr. PFEIFFER

6.10-7.25, P.M., Tu. and F., Room 202 Hamilton. Credit I, IV. Fee, \$15

The subject-matter of this course includes quadratic equations, variations, trigonometric functions, circular measure, relations between the functions, functions of several angles, inverse functions, trigonometric equations, logarithms, solution of triangles, complex numbers, and the theory of algebraic equations so far as is necessary for the development and use of Horner's method for the solution of numerical equations.

Elementary algebra through the quadratic equation is presupposed.

Equivalent to Mathematics A1 or A4 in the Announcement of Columbia College.

eA2—Solid geometry. 3 points. Second half-year. Mr. Mullins 7-8.15 p.m., M., and Th., Room 202 Hamilton. Credit I, IV. Fee, \$15

In addition to the usual theorems on lines, planes and solids, the geometry of the sphere, and the development of space intuition, this course lays special stress upon the purely logical side of the subject and the nature of mathematical proof.

Plane geometry is presupposed.

The above course is equivalent to Mathematics A2 in the Announcement of Coumbia College.

eA4—Trigonometry and algebra. Course eA1 repeated. 3 points. Second half-year. Mr. Pfeiffer

6.10-7.25 P.M., Tu., and F., Room 202 Hamilton. Credit I, IV. Fee, \$15

(For description of course see eA1 above)

e1—Algebra. 2 points. First half-year. Mr. Mullins 7-8.15 p.m., Tu. and F., Room 203 Hamilton. Credit I, IV, V. Fee, \$10

This course is designed for students who desire to continue with such more advanced topics as permutations and combinations, determinants with applications to the solutions of linear equations, complex numbers, theory of equations with reference to the solution of numerical equations of higher degree, undetermined coefficients involving the use of finite series, and partial fractions.

Acquaintance with the elements, including the quadratic equation, is presup-

posed.

Equivalent to Mathematics 5 or 6 in the Announcement of Columbia College, and to Mathematics 1 or 2 in the Announcement of the Schools of Mines, Engineering and Chemistry.

e3—Analytical geometry. 3 points. First half-year. Mr. Bell 8.20-9.10 p.m., M. and Th., Room 203 Hamilton. Credit I, IV, V. Fee, \$15

Introduction to algebraic geometry, dealing with such topics as coordinate systems, transformations, loci and their equations, the straight line, circle, parabola, ellipse, hyperbola, the geometric interpretation of the general equation of second degree, and the elements of three-dimensional geometry.

eA1 and eA2 or their equivalents are presupposed.

Equivalent to Mathematics 3 or 4 in the Announcement of Columbia College, and of the Schools of Mines, Engineering and Chemistry.

e4—Analytical geometry. Course e3 repeated. 3 points. Second half-year. Mr. Bell

8.20-9.10 P.M., M., and Th., Room 203 Hamilton. Credit I, IV, V Fee, \$15

(For description of course see e3 above)

e15-16-Calculus. 3 points each half-year. Mr. Bell

7-8.15 P.M., Tu. and F., Room 309 Hamilton. Credit I, IV, V. Fee, \$15

The notions and operations of function, differentiation, and integration are presented with applications to geometry, physics and mechanics.

e3 or its equivalent is presupposed.

Equivalent to Mathematics 15-16 in the Announcement of Columbia College.

# Mechanical Drawing

eW1—Elementary freehand drawing. One hour lectures and six hours drafting per week. Mr. J. E. Beans. First half-year.

6.20-7.10 and 8.10-9.50; or 6.20-8.10 and 9-9.50 P.M., M., W. and F., Room 601 Engineering. Fee, \$20

Repeated in second half-year if called for

e1-2—Mechanical drafting.\* 1 hour lecture and 5 hours drafting-room work per week. 2½ points each half-year. Professor Harrington 7.20-10 P.M., Tu. and F., Room 607 Engineering. Credit IC, V, V. Fee, \$12.50 each half-year

<sup>\*</sup> Students will be required to furnish their own drafting instruments and materials.

This course presupposes a fair ability in freehand drawing, and is the equivalent of the courses given to students of the first year in the Schools of Mines, Engineering and Chemistry.

The topics covered will be: the use of instruments; geometrical drafting; lettering: orthographic projection; topographical drafting; elementary working drawings.

- e3-4—Descriptive geometry. 2 hours lectures. 2 points each halfyear. Professor Harrington
- 6.10-7 P.M., Tu. and F., Room 306 Engineering. Credit IC, IV, V. Fee, \$10 each half-year

This course will cover elementary problems relating to the point, right line, and plane; generation and classification of lines and surfaces; tangent planes to surfaces of single and double curvature; intersection of surfaces by planes; development of single curved surfaces; intersection of single curved surfaces.

- e5—Graphics.\* 1 hour lecture and 5 hours drafting-room work per week. 3 points. First half-year. Professor Harrington
  - 7.20-10 P.M., Tu. and F., Room 607 Engineering. Credit V. Fee, \$15

This course treats of the elements of shades and shadows and perspective. The solution of 35 problems in the shades and shadows of lines, planes and groups of solids, including the niche and torus, gives a fair working knowledge of this subject, while a sufficient number of plates are given in perspective to illustrate in detail all of the principles involved.

Prerequisites, Elements of mechanical drafting and descriptive geometry.

- e8—Specialized engineering drafting.\* (a) Structural drafting. (b) Machine drafting. 1 hour lecture and 5 hours drafting-room work per week. 3 points. Second half-year. Professor HARRINGTON
  - 7.20-10 P.M., Tu. and F., Room 607 Engineering. Credit V. Fee, \$15

This course includes methods used in framing and detailing in structural work; mine timbering; detailed and assembled drawings of ore-cars and skips; working drawings of machine details; tracings, etc., according to the course selected by the student.

Prerequisites, Elements of mechanical drafting and descriptive geometry.

#### Mechanics

e1—Statics. 2 points. First half-year. Mr. WHITTEMORE 6.10—7 p.m., Tu. and F., Room 303 Hamilton. Credit I, IV. Fee, \$10

Coplanar statics is treated by both algebraic and graphical methods.

Text-book: Maurer's Technical Mechanics.

Prerequisites: Entrance physics and entrance mathematics as required for the Schools of Mines, Engineering and Chemistry.

# Money and Banking (see p. 20)

<sup>\*</sup>Students will be required to furnish their own drafting instruments and materials.

#### Music

# eX1-X2-Vocal training for service in choirs. Mr. Nichols

4 P.M., Tu. and F., Room 608 Mines. Credit Ic for Columbia College. Two hours instruction and laboratory work consisting of singing at chapel services. 1½ points each half-year. Fee, \$7.50 each half-year

This course is designed for college students who desire to begin the cultivation of the voice during their undergraduate life. It is intended primarily for those desiring to become members of the choir of St. Paul's Chapel, the daily service and Thursday rehearsals being counted as laboratory work. Correct tone production, proper breath control, diction, a natural and artistic delivery, correction of throatiness and other vocal faults, and the study of classical and modern lyrics will be the aim of this course, each student in the class receiving individual instruction. Students having taken this course will be eligible to the salaried positions in the Chapel choir the following year.

# e33-34-University Chorus. Mr. HALL

8.30-10 P.M., W., Earl Hall. Fee for University students expecting credit \$5; for all others \$2 for the year. One point credit in Columbia College for the year if taken in conjunction with another course in music. At Teachers College, 2 points credit.

For the practice and performance of various forms of choral art. It is expected that two large concerts will be given during the year, when the University Chorus will join with those of Brooklyn (Brooklyn Oratorio Society), Flushing, New Rochelle and Yonkers, forming a large festival chorus. Students will be allowed to become members of this chorus only after application to the Conductor, Mr. Hall, and after a voice trial.

# eZ1-Z2—Sight-reading and accompanying for key-board instruments. 2 points each half-year. Mr. Lamond

4.10-5.50 P.M., Th., Room 603 Teachers College. Credit IA, IV. Fee, \$10 each half-year. Studio fee, which includes necessary apparatus and music, \$5

A practical course for gaining a fluent command of the key-board. The system will be directed towards enabling the student to transmit automatically written musical signs into muscular actions or playing movements. It will also include a course in finger gymnastics. Half an hour's daily practice will be required. The course will be divided into three parts:

Part I. 10 weeks. Demonstration of the system of reading music at first sight. Application of this to practical music. Part II. Practical illustrations in musical literature, from easy works to difficult. Students will be required to perform these examples. Part III. 10 weeks. Rhythm, accompanying and improvising.

# e53-54—Introductory harmony. 2 points each half-year. Mr Kraft

11-12.40 A.M., S., Room 608 Mines. Credit IA, IV. Fee, \$10 each half-year

The aim of this course is, first, to lead the student to observe the structure of hymn-tunes, chorals and simple compositions, with reference to the melodic movement of parts and to the character and distribution of chords. Second, to give practice in melodic invention and chord combinations expressed in simple constructive work. This work forms the basis for the study of theoretic harmony.

Negotiable Paper (see p. 20)

# Philosophy

eA1—Principles of science: methods, deductive and inductive logic. Lectures, recitations and individual consultations with the instructor. 3 points first half-year. Dr. Brown

8.20-9.35 P.M., Tu. and F., Room 406 Hamilton. Credit I, IV. Fee, \$15

This course aims at drilling the students in the forms of accurate thinking, and at developing skill in detecting errors in reasoning. The principles of inductive and deductive logic will be taught and applied, both critically and constructively, to a large number of arguments.

Text-book: Dewey's How We Think and Sidgwick's The Application of Logic. This course is the same as Philosophy A1 in Columbia College.

eA2—Principles of science, concepts and problems of philosophy. Lectures, recitations and individual consultations with the instructor. 3 points second half-year. Dr. Brown

8.20-9.35 P.M., Tu. and F., Room 406 Hamilton. Credit I, IV. Fee, \$15

This course is intended to acquaint the student with the fundamental concepts upon which philosophy is based, and to show him how concepts are related and organized into the systematic points of view that characterize the great movement of current philosophical thought.

This course is the same as Philosophy A2 in Columbia College.

e61-62—History of philosophy. Lectures, discussions and essays. 2 points each half-year. Dr. Cooley

4.10-5.50 P.M., W., Room 309 Hamilton. Credit I, IV. Fee, \$10 each half-year

In the first half-year the genesis of the fundamental problems of thought, ethics and religion and the treatment they received from ancient and mediaeval thinkers will be traced. The second half-year will be devoted to the consideration these problems from the point of view of the modern world.

Text-books: Weber, History of Philosophy; Windelband, Ancient Philosophy.

# Physical Education

(For men students)

eX1-X2—Gymnastics. Mr.

8.30-9.20 P.M., M., Th., S. Gymnasium fee \$3.50 each half-year. Fee for instruction, \$10 each half-year

This course comprises free exercises with and without hand apparatus and chest-weight exercises; simple work on gymnastic apparatus, such as horizontal ladder, horizontal bar, ropes, buck, horse, etc., gymnasium games; swimming.

eY1-Y2-Swimming. Mr. KENNEDY

Section 1.—M. 8.30-9 or 9-9.30, P.M.

Section 2.—Th. 8.30-9 or 9-9.30, P.M.

Section 3.—S. 8.30-9 or 9-9.30, P.M.

Gymnasium fee, \$3.50 each half-year. Fee for instruction, \$10 each half-year

Students may receive instruction on either Monday, Thursday or Saturday and will have the privilege of using the swimming pool on the remaining evenings.

eZ1-Z2-Boxing. Mr. WEEMAN

Individual instruction. Fifteen half-hour lessons, one lesson each week.

Section 1.—M. 8, 8.30, 9 P.M.

Section 2.—Th. 8, 8.30, 9 P.M.

Section 3.—S. 8, 8.30, 9 P.M.

Gymnasium fee, \$3.50 each half-year. Fee for instruction, \$20 each half-year

### Physics

eA1-A2—Elementary course in general physics. 3 hours lectures and recitations, with 2 hours laboratory work. 4 points each half-year. Mr. FARWELL

7.30-10 p.m., M. and Th., Room 301 Fayerweather. Credit I, IV. Fee, \$20 each half-year

An introductory course in physics for students who wish to become acquainted with the results, methods and spirit of the science, whether they intend to pursue its study further, or wish an elementary knowledge of physics only as a matter of general interest.

#### **Politics**

e1-2—American government. 3 points each half-year. Mr. Ross 4.30-5.45 p.m., M. and Th., Room 402 Hamilton. Credit I. IV. Fee, \$15 each half-year

This course will deal with the government of New York City, New York State and the nation. Emphasis will be laid upon the actual operations of governments, the part played by national parties, etc. Some attention will be paid to the teaching of civics, the organization of civic clubs, the "school city," self-government etc.

Identical with Politics e1-2 in the College course.

# **Practical Optics**

A special circular of the courses in practical optics may be obtained from the Secretary of the University.

# Psychology

e1-2—Elements of psychology. Lectures, demonstrations, discussions and recitations. 3 points each half-year. Dr. Hollingworth 4.30-5.45 p.m., Tu. and F., Room 401 Schermerhorn. Credit I, IV. Fee, \$15 each half-year

This course is designed to give the student a knowledge of the essential facts and fundamental laws of mind. It serves as an introduction to the more advanced courses in psychology and philosophy, and also meets the requirements of boards of education for a course in general or pure psychology. The first part of the course deals with the nervous system and sensation, the second part with the higher mental processes.

e3-4—Elements of experimental psychology. Lectures, recitations and laboratory work. 3 points each half-year. Dr. POFFENBERGER

7.30-9 P.M., Tu. and F., Room 407 Schermerhorn. Credit I. Fee, \$15 each half-year

This course is intended to give the student a general knowledge of the materials, methods and results of experimental psychology. The first part of the course will include the psychology of the special senses, and the second part will include a study of memory, association, learning and the other higher mental processes.

Prerequisite, Psychology e1-2 or its equivalent. The course may be taken as a

parallel to e1-2.

e141—Applied psychology. Lectures, demonstrations and discussions. First half-year. Dr. Strong

7.30-9.10 P.M., W., Room 407 Schermerhorn. Credit II, half-course, Fee, \$10

Special application of the findings of experimental psychology will be made as they apply to practical everyday, business, and professional life. Such topics as testimony, belief, suggestion, crime, habit, efficiency, interest, etc., will be especially considered.

e142—Psychology of advertising. Lectures, demonstrations and discussions. Second half-year. Dr. STRONG

7.30-9.10 P.M., W., Room 407 Schermerhorn. Credit II, half-course. Fee, \$10

The problems of "attracting and holding attention," "arousing interest," and "securing action" will be considered in detail. Special attention will be devoted to the explanation of experimental methods of determining the efficiency of advertisements in these respects. Results from actual campaigns will be considered throughout the course.

e144—Laboratory work in advertising. Second half-year. Dr. Strong

(Hours to be arranged with the instructor), Room 407 Schermerhorn. Credit II, half-course Fee, \$10

This course is designed to familiarize the student with experimental methods which may be applied to advertising problems. Comparison of experimental results will be made with actual returns in advertising campaigns.

The course will be given providing a sufficient number of students register. Names should be sent to the Director of Extension Teaching before February 5, and not later than February 19.

#### ROMANCE LANGUAGES

#### French

eA1-A2—Elementary course. 3 points each half-year. Credit I, IV. Fee, \$15 each half-year

Sec. 1. 4.30-5.45 p.m., Tu. and F., Room 303 Hamilton. Mr. Muller Sec 2. 7.20-8.35 p.m., M., Th., Room 303 Hamilton. Mr. Cohn-McMaster

This course is intended for students who have no previous knowledge of French. The instruction is planned so as to enable students to read at sight ordinary French prose. Reading will constitute a large part of the work of the course. In connection with the reading, a careful study of the essentials of grammar and syntax will be taken up together with simple composition. Attention will be paid to correct pronunciation and as far as possible to the understanding of simple spoken French.

Text-books: Thième & Effinger, A French Grammar; Grandgent, Materials for

French Composition, Part III; Douay, An Elementary French Reader; Daudet, Trois Contes choisis; Laboulaye, Contes bleus; Vigny, Le Cachet rouge.

Equivalent to Course A1-A2 as given in Columbia College.

eA3-A4—Elementary course. Equivalent to Course eA1. 1½ points each half-year. Mr. FARNSWORTH

11-12.15, A.M., S. Thirty sessions, Room 309 Hamilton. Credit I, IV. Fee. \$7.50 each half-year

This course will enable the student to master the elements of French Grammar, the regular verbs, simple idioms, a few of the irregular verbs, and enough of the subjunctive to make possible the reading of easy French. Some attention will be paid as far as possible to the training of the ear in understanding spoken French.

Text-books: Thième and Effinger, A French Grammar; Douay, An Elementary

French Reader.

eA5-A6—Elementary course. Equivalent to Course eA2. 1½ points each half-year Mr. FARNSWORTH

9.30-10.45 A.M., S. Thirty sessions, Room 309 Hamilton. Credit I, IV. Fee, \$7.50 each half-year

This course is supplementary to eA3-4 and is given on Saturday throughout the

eA8—Elementary course. 6 points. Second half-year. Dr. ALEX-

4.30-5.45 P.M., M., Tu., Th. and F., Room 203 Hamilton. Credit I, IV. Fee, \$30

(For description of course see eA1-2.)

eB1-B2-Intermediate course-grammar, reading and composition. 3 points each half-year. Credit I, IV. Fee, \$15 each half-year

Sec. 1-4.30-5.45 P.M., M. and Th., Room 303 Hamilton. Mr. Bigon-

Sec. 2-7-8.15 P.M., Tu. and F., Room 307 Hamilton. Mr. IMBERT

The work will consist: first of the study of French syntax; second, of the reading and translation of French prose; third of translation from English into French; fourth, of outside reading. As far as practicable French will be the language of the class-room.

Text-books: Fraser and Squair, French Grammar; Voltaire, Zadig; Lesage, Gil Blas; Sandeau, Mademoiselle de la Seiglière; Balzac, Le Curé de Tours; La Fontaine, Fifty Fables; Molière, Le Bourgeois Gentilhomme; L'Avare.

Outside reading: Thiers, Bonaparte en Egypte.

Equivalent to Course B1-B2 as given in Columbia College.

eB3-B4-Intermediate course-grammar, reading and composition. Equivalent to Course eB1. 1½ points each half-year. Mr. FARNS-WORTH

12.15-1.30 P.M., S. Room 309 Hamilton. Credit I, IV. Fee, \$7.50 each half-year

(for description of course see eB1-B2)

e1-2-General introduction to the study of French literature. Composition, readings, lectures. 3 points each half-year. Mr. Fortier 4.30-5.45 P.M., Tu. and F., Room 307 Hamilton. Credit I, IV. Fee, \$15 each half-year

This course is designed both to complete the student's elementary training in the French language and to give him some knowledge of the history of French

literature since 1600, and its more important authors,

Text-books: Pellissier, Précis d'Histoire de la Litterature Française; Corneille Le Cid; Molière, Les Précieuses Ridicules and Tartuffe; Racine, Phèdre; Bossuct, Oraisons funèbres; Pascal, Les Provinciales; Voltaire, Prose (extracts, Cohn and Woodward edition); Marivaux, Le Jeu de l'Amour et du Hasard; Oxford, book of French verse; Victor Hugo, Hernani, Ruy Blas; Musset, Trois comédies; Rostand, Cyrano de Bergerac.

Outside reading: First half-year, Corneille, Polyevcte; Molière, Les Femmes savantes; le Misanthrope; Racine, Iphigénie or Athalie. Second half-year, one of the following works: Balzac, Eugénie Grandet; Taine, L'Ancien régime; Renan, Souvenirs d'Enfance et de Jeunesse; Hugo, Quatrevingt-treize.

Equivalent to Course 1-2 as given in Columbia College.

# e3-4—Conversation and composition based upon the history of France. 3 points each half-year. Mr. FORTIER

4.30-5.45 P.M., M. and Th., Room 307 Hamilton. Credit I, IV. Fee, \$15 each half-year

Conducted entirely in French, giving facility in idiomatic expression, both in writing and speaking. The work will consist of readings, dictations, themes and talks based upon French history and French daily life.

Equivalent to Course 3-4 as given in Columbia College.

# e5-6—History of French literature in the seventeenth century. 3 points each half-year. Professor Loiseaux

4.30-5.45 p.m., Tu. and F., Room 507 Hamilton. Credit I, IV. Fee, \$15 each half-year

The subject of the course is the history of French literature during the century of Louis XIV. The principal authors studied will be, Descartes, Pascal, Bossuet, Madame de Sévigné, La Rouchefoucauld, La Bruyère, Corneille, Molière, Racine, Boileau and La Fontaine. The course is conducted entirely in French.

Text-books: Lanson, Histoire de la Litterature Française (eleventh edition), and the works of the authors named above.

Equivalent to Course 5-6 as given in Columbia College and Barnard College.

# e101-102—History of French literature in the seventeenth century. Professor Loiseaux

4.30-5.45 P.M., Tu. and F., Room 507 Hamilton. Credit II, full course. Fee, \$20 each half-year.

Courses e101-102 consists of attendance at lectures in Course e5-6, supplemented by special research work.

#### Italian

# e1-2—Elementary course. 3 points each half-year. Professor Livingston

4.30-5.45 P.M., Tu. and F., Room 309 Hamilton. Credit I, IV. Fee, \$15 each half-year

The aim of this course is to impart an accurate reading knowledge of modern Italian, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in Course 2 special attention will be paid to Italian composition.

e3-4-Advanced course. 3 points each half-year. Professor Living-

7-8.15 P.M., M., and Th., Room 408 Hamilton. Credit I, IV. Fee, \$15 each half-year

In this course a great deal more reading is done than in e1-2. The two courses together may be considered a preparation to the graduate courses in the University.

#### Spanish

e1-2-Elementary course. 3 points each half-year. Professor Fontaine

4.30-5.45 P.M., M. and W., Room 309 Hamilton. Credit I, IV. Fee, \$15 each half-year

The aim of this course is to impart an accurate reading knowledge of modern Spanish, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in Course 2 special attention will be paid to Spanish composition.

Text-books: Loiseaux, Spanish Grammar, Elementary Spanish Reader, Spanish Composition; P. A. de Alarcon, El Capitan Veneno; Galdós, Marianela, Doña Perfecta; Carrión y Aza, Záragueta.

Outside reading: Valera, El Pajaro Verde; Lesage, Gil Blas (Padre Isla's translation.)

Equivalent to Course 1-2 as given in Columbia College.

c3-4—Advanced course. 3 points each half-year. Professor Geric 4.30-5.45 P.M., M. and Th., Room 406 Hamilton. Credit I, IV. Fee, \$15 each half-year

Second year course. A continuation of course e1-2, in which emphasis will be placed on rapid reading of modern prose, on advanced composition and conversation.

Text-books: Hills and Ford, A Spanish Grammar; Crawford's Spanish Composition; Valdés, José; Galdós, Marianela; Valera, El Comendador Mendoza. There will be some outside reading in connection with the course.

Equivalent to course 3-4 as given in Columbia College.

#### Sociology

e151—Principles of sociology. Lectures, readings, discussions and exercises. First half-year. Mr. Shenton.

7.30-9.20 P.M., M., Room 405 Kent. Fee, \$10. Credit II, half course

A course in the elements of social theory, the scope, method and problems of sociology and the structure and movements of the population. An analysis of the social mind. The methods of scientific study of society will be discussed and applied to current sociological material and the problems of vital social interest.

Text-book: Giddings, Principles of Sociology.

e152—Historical evolution of society. Lectures, readings and discussions. Second half-year. Mr. Shenton

7.30–9.20 P.M., M., Room 405 Kent. Fee, \$10. Credit II, half course

The origin of man and the beginnings of association. Evolution of human association and of the social mind. Rise of civilization, liberty and democracy. The evolution of a world society and an examination of the theory of progress. The social process physical and psychical. Social causation.

### Statistics (see p. 20)

### Stenography and Typewriting

e1—Elementary stenography. First half-year. Mr. Beygrau and Mr. Callan. Room 109 Library

Sec. 1—4.15 -5.15 P.M., (typewriting). Fee, \$15 each half-year; 5.15-6.15 P.M., (stenography). Fee, \$20 each half-year. M., Tu., W. and Th. Fee, \$30 each half-year if taken together.

Sec. 2—6.15-7.15 P.M. (typewriting). Fee, \$10 each half-year; 7.30-9.10 P.M. (stenography). Fee, \$15 each half-year. Tu. and Th. Fee, \$20 each half-year if taken together.

#### Stenography

This course is designed for men and women who desire to become secretaries or shorthand and typewriting teachers.

A thorough presentation of the Isaac Pitman system will be given. The successful completion of the fundamental principles of shorthand will be followed by a presentation of phrases, contractions, commercial and legal work. Those who acquire proficiency in shorthand and who are able to speak and write German will have an opportunity to adapt this system of shorthand to the German language.

Text-book: Course in Isaac Pitman Shorthand.

Outside reading: The instructor will provide the students with suitable literature as the course progresses.

#### Typewriting

Scientific typewriting. Touch operating as practised by rapid operators. Text-book: A Practical Course in Touch Typewriting by Chas. E. Smith. Note: Typewriting machines will be provided for the use of the students.

e2—Elementary stenography. Equivalent to course e1. Second half-year. Mr. Beygrau and Mr. Callan. Room 109 Library

(Hours and fees same as in first half-year)

Note.—Advanced courses in stenography will be given if called for.

# Surveying (see p. 24)

# Trade and Transportation (see p. 20)

# Zoology

e1-2—Elementary biology and zoology. Lectures and laboratory. 2 points each half-year. Professor McGregor

1.30-2.30 P.M., S., Room 619 Schermerhorn. (Laboratory, 2.30-4.20 P.M., S., Room 618 Schermerhorn.) Credit Ic, IV. Fee, \$10 each half-year. An additional fee of \$2.50 is charged for materials

The earlier part of this course is designed to give the student an elementary knowledge of the basic principles of biology and the general physiology of organisms. Protoplasm, the cell, unicellular organisms, plant and animal in relation to each other and to the inorganic world are the chief topics discussed in the first half. The second term is mainly devoted to the study of the structures and adaptations of some of the more important groups of animals, with dissection of types in the laboratory.

A text-book will be used and collateral reading assigned.

Prerequisite: An elementary knowledge of chemistry is desirable.

# COURSES IN LOCAL CENTRES BROOKLYN

Columbia University will offer during the academic year 1912–1913 courses of instruction for men and women of Brooklyn. These will be given in the afternoon and evening. They will be open to all students, both men and women, fitted to undertake the courses, and for those who are matriculated in accordance with the rules of the faculties of the colleges of the University, will count toward the degrees. The Brooklyn centre is located at the Prospect Heights School, 51 Seventh Avenue, near Lincoln Place, and three blocks from Flatbush Avenue. Students may consult Mr. William K. Lane, A.B., at the school.

Additional courses beyond those named below will be offered in Brooklyn and will be announced in a special circular.

. The points and fees are stated for the half-year.

### English

eX1-X2—College entrance English. Books for reading. Reading of texts, themes, conferences, tests, lectures, discussions. Dr. Miles

7.20-8.35 P.M., M. and Th. Fee, \$15 each half-year

This course is designed to aid in preparing for English a as required for admission to College and to the Schools of Mines, Engineering and Chemistry. Each week certain texts will be read and themes prepared. The successful completion of this course will count toward the removal of entrance conditions in English.

eY1-Y2—College entrance English. Books for study. Study of texts, themes, tests, lectures, discussions. Dr. Miles

7.20-8.35 P.M., W. Fee, \$10 each half-year

This course is designed to aid in preparing for English b as required for admission to College and to the Schools of Mines, Engineering, and Chemistry. The successful completion of this course will count toward the removal of entrance conditions in English.

eA1-A2—English composition. Lectures, themes, and conferences. 3 points each half-year. Dr. Miles

8.35-9.50. M. and Th.. Credit I, IV. Fee, \$15 each half-year This course corresponds to English A in Columbia College.

e35a-36a—Shakspere. 2 points each half-year. Miss MITCHELL 4—5.40 p.m., W. Credit I, IV. Fee, \$10 each half-year

This course will consist of lectures and discussions. A large number of the plays will be read and special topics will be taken up in connection with the reading; the relation of Elizabethan drama to the general history of the drama in England; the sixteenth century play-goer and the sixteenth century play-house; ideals of the time reflected in the Shaksperean drama; Shakspere as a playwright, his handling of sources, his power of characterization, of plot-building, etc.

#### French

eA1-A2—Elementary course. 3 points each half-year. Mr. FARNSWORTH 7.20-8.35 P.M., Tu and Fr. Credit I, IV. Fee, \$15 each half-year

This course is intended for students who have no previous knowledge of French. The instruction is planned so as to enable students to read at sight ordinary French prose. Reading will constitute a large part of the work of the course. In connection with the reading a careful study of the essentials of grammar and

syntax will be taken up together with simple composition. Attention will be paid to correct pronunciation and as far as possible to the understanding of simple spoken French.

Text-books: Thième and Effinger, A French Grammar; Grandgent, Materials for French Composition, Part III; Douay, An Elementary French Reader; Daudet, Trois Contes choisis; Laboulaye, Contes bleus; Vigney, Le Cachet rouge.

Equivalent to Course A1-A2 as given in Columbia College.

#### German

eA1-A2—Elementary course. 3 points each half-year. Mr. PALM-BLAD

7.20-8.35 P.M., M. and Th. Credit I, IV. Fee, \$15 each half-year

For course eA1 no previous knowledge of German is required. Prerequisite

to eA2: eA1, eA3-4 or sA1 and sA2 (Summer Session courses).

This course familiarizes the beginner with the common vocabulary and the fundamental grammatical facts of the language, so as to enable him to read easy German at sight. Reading forms part of the work from the beginning, together with grammar study, easy exercises in composition and a considerable amount of colloquial practice in the phrases of every-day life. Although this course is intended for beginners it may be taken with profit by those who have some previous knowledge of the language but are deficient in grammar.

Text-books: Thomas, Practical German Grammar, 4th edition (Holt); Hervey, Supplementary Exercises to Thomas's Grammar, 4th edition (Holt); Guerber,

Märchen und Erzablungen (Heath).

Course eA2 completes the College Entrance requirement in Elementary German

#### History and Government

eX1-X2-English history. Mr. Ross

7.20-8.10 P.M., Tu. and F. Fee, \$10 each half-year

This course corresponds to the English History as required for admission to college. It is given with due reference to sociological and political development.

eY1-Y2—American history and government. 2 points each halfvear. Mr. Ross

8.35-9.25 P.M., Tu. and F. Fee, \$10 each half-year

This course corresponds to the American History as required for admission to college. It includes not only history but also a study of elementary civil government.

#### Italian

e1-2—Elementary course. 3 points each half-year. Mr. Farnsworth 8.35-9.50 p.m., Tu. and F. Credit I, IV. Fee, \$15 each half-year

The aim of this course is to impart an accurate reading knowledge of modern Italian, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in Course 2 special attention will be paid to Italian composition.

#### Mathematics

eX1-X2-Algebra, elementary course. Mr. LANE

8.35-9.25, P.M., M. and Th. Fee, \$10 each half-year

**eY1-Y2—Plane geometry.** 2 points each half-year. Mr. Lane **7.45-8.35** P.M., M. and Th. Fee, \$10 each half-year

eA1—Trigonometry and algebra. 3 points first half-year. Mr. Brett 7.20-8.35 p.m., Tu. and F. Credit I, IV. Fee, \$15.

The subject-matter of this course includes quadratic equations, variations, trigonometric functions, circular measure, relations between the functions, func-

tions of several angles, inverse functions, trigonometric equations, logarithms, solution of triangles, complex numbers and the theory of algebraic equations so far as is necessary for the development and use of Horner's method for the solution of numerical equation.

Elementary algebra through the quadratic equation is presupposed.

Equivalent to Mathematics A1 or A4 in the Announcement of Columbia College.

## eA2—Solid geometry. 3 points second half-year. Mr. Brett 7.20-8.35 P.M., Tu. and F. Credit I, IV. Fee, \$15.

In addition to the usual theorems on lines, planes and solids, the geometry of the sphere, and the development of space intuition, this course lays special stress upon the purely logical side of the subject and the nature of mathematical proof.

Plane geometry is presupposed.

Equivalent to Mathematics A2 in the Announcement of Columbia College.

#### Spanish

#### eA1-A2-Elementary course. 3 points each half-year. Mr. FARNS-WORTH

8.35-9.50 P.M., M. and Th. Credit I, IV. Fee, \$15 each half-year

The aim of this course is to impart an accurate reading knowledge of modern Spanish together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in Course A2 special attention will be paid to Spanish composition.

Text-books: Loiseaux, Spanish Grammar, Elementary Spanish Reader, Spanish Composition; P. A. de Alarcon, El Capitan Veneno; Galdos, Marianela, Doña Perfecta; Carrion y Aza, Zaragueta.

Outside reading: Valera, El Pajaro Verde; Lesage Gil Blas (Padre Isla's translation).

Equivalent to Course 1-2 as given in Columbia College.

# Stenography and Typewriting

# Stenography e1. First half-year. Mr. THARP

4-5 P.M., Tu., W. and F. Begins September 27. Fee, \$15

This course is designed for men and women who desire to become secretaries or shorthand and typewriting instructors. It will give the student a thorough knowledge of the fundamental principles of stenography, and drill in the practical application of those principles. The successful completion of the fundamental principles of shorthand will be followed by the presentation of phrases, contractions and commercial work, This work may be followed by dictation drills and advance reading exercises.

Text-book: Course in Isaac Pitman Shorthand.

Outside reading: The instructor will refer the students to suitable shorthand literature for any additional work as the course progresses,

Equivalent to Stenography as given in Columbia University,

### Typewriting e1. First half-year. Mr. Tharp

5-5.40 P.M., Tu., W. and F. Begins September 27. Fee, \$10

Scientific touch typewriting. This course embraces the important fundamental phases of typewriting work. Students are carefully taught the manipulation and care of the machine, the touch method as used by expert writers, and special finger drills for developing the muscular dexterity required. Special attention will be given to the spacing, the centering and artistic arrangement of the typewritten page.

Note: Typewriting machines will be provided for the use of the students.

Equivalents to Typewriting as given in Columbia University.

Students can combine—and are recommended to do so, when they register the stenography and typewriting. Students electing such combination are entitled to take both courses at a total fee of \$20.

#### BUFFALO

Columbia University will offer for both men and women during the first half-year of 1912-13, courses of instruction in Buffalo at the Lafayette High School, Lafayette Avenue and Baynes Street. They will be open to qualified students, and for those who are matriculated in accordance with the rules of the faculties of the colleges of the University, will count toward the degrees. They will also count for advanced standing in accordance with the rules of the various faculties. Students may consult Miss Cora S. Sangster, 149 Hoyt Street, Buffalo, N. Y.

### English

e35A—Shakspere. 2 points. First half-year. Dean Turk 4-5.40 p.m., Th. 15 periods beginning September 26. Credit I, IV. Fee, \$10.

This course on Shakspere and his work is conducted by lectures with a conference following each lecture. The introductory lectures deal with the pre-Shaksperian drama and with Shakspere's life and times. There will be a discussion of the development of Shakspere's work as a whole and a careful study with the class of one or two representative plays. Structure will be considered, but the chief emphasis will be laid upon the meaning rather than the form of the plays.

#### History

e11—English history since 1660. 2 points. First half-year Professor Tanner

4-5.40 P.M., M. 15 periods beginning September 30. Credit I, IV. Fee, \$10.

The purpose of this course is to trace in general outline the growth of English life in its institutional aspects from the Stuart Restoration of 1660 to the present. While not omitting important social and economic development it will put special stress on the political growth of England with a view to an understanding of the present system of government and of contemporary political problems. It will deal with establishment of Parliamentary Supremacy, the growth of cabinet and party government, the slow triumph of modern Democracy, the loss of the Old British Colonial Empire and the evolution of the New.

#### NEWARK

Columbia University will offer for both men and women during the academic year 1912-1913 courses of instruction at 33 East Park Street, Newark, N. J. These will be given in the evening, the late afternoon, and on Saturday. They will be open to all qualified students, and, for those who are matriculated in accordance with the rules of the faculties of the colleges of the University, will count toward the degrees. Students may consult Mr. RICHARD D. CURRIER, Assistant to the Director, 33 East Park Street.

The points and fees are stated for the half-year

#### Commerce

The following courses will be offered in Newark for the benefit of students in commerce, beginning September 26, 1912. They will count toward the Certificate in Commerce of Columbia University.

#### Bookkeeping

# e1-2—Elementary bookkeeping. Mr. Koopman

7.30-9.20 P.M., F. Fee, \$15 each half-year

A knowledge of bookkeeping is not required of students taking this course. The principles of accounting and technique of bookkeeping will be developed from a few simple accounts to the complete system of accounts required by a modern business. The use of business forms such as checks, notes, drafts, consignments, account sales, etc., will be explained and applied in the work; statements will be prepared; conversion from single proprietorship to partnership will be made, and problems illustrating the changing from single entry to double entry will be solved.

# e3-4—Principles of accounting. 2 points each half-year. Mr. Mather

7.30-9.20 P.M., M. Fee, \$10 each half-year

This course, open only to students possessing a high-school education and a knowledge of double entry bookkeeping, is designed especially to assist those who wish to study the underlying theory and principles of accounting as applied in its varying forms to present day commerce, whether they are at present engaged in or wish to enter the accountancy profession, or desire to improve their knowledge of accountancy with a view to occupying executive or other positions where such a knowledge is necessary or desirable. Students of law, engineering and other professions will also find a course in accounting of great value to them.

#### Insurance

# c5-6—Insurance. 2 points each half-year. Mr. Stevens 7.30-9.20 p.m., W. Fee \$10 each half-year

This course is designed to give a comprehensive knowledge of the principles of insurance. The first part of the work will discuss personal insurance, and will be followed by a treatment of property insurance. Brief attention will be given to the history and theory of life insurance, and the different types of companies. The various types of policies will be considered as will also the calculation of net premiums; various methods of loading; the reserve; the surplus; surrender of values;

policy loans; assignment of policies and adaptability of certain types of policies to the requirements of certain classes of policy holders. Under the subject of property insurance the course will treat briefly the historical development. In greater detail will be considered the types of fire insurance companies; mortgage clause; description of the property and risk assumed; schedule rating; the policy contract, etc. Other leading forms of insurance, such as marine, employers' liability, corporate suretyship, title insurance and credit insurance will also be discussed.

# Stenography and Typewriting

# Stenography e1. First half-year. Mr. THARP

7.20-9.00 P.M., M. and Th. Begins September 26. Fee, \$15

This course is designed for men and women who desire to become secretaries or shorthand and typewriting instructors. It will give the student a thorough knowledge of the fundamental principles of stenography, and drill in the practical application of those principles. The successful completion of the fundamental principles of shorthand will be followed by the presentation of phrases, contractions and commercial work. This work may be followed by dictation drills and advance reading exercises. Repeated in second half-year if called for.

Text-book: Course in Isaac Pitman Shor hand.

Outside reading: The instructor will refer the students to suitable shorthand literature for any additional work as the course progresses.

Equivalent to Stenography as given in Columbia University.

### Typewriting e1. First half-year. Mr. THARP

9-9.50 P.M., M. and Th. Begins September 26. Fee, \$10

Scientific touch typewriting. This course embraces the important fundamental phases of typewriting work. Students are carefully taught the manipulation and care of the machine, the touch method as used by expert writers, and special finger drills for developing the muscular dexterity required. Special attention will be given to the spacing, the centering and artistic arrangement of the typewritten page.

Note: Typewriting machines will be provided for the use of the students.

Equivalent to Typewriting as given in Columbia University.

Students can combine—and are recommended to do so, when they register—the stenography and typewriting. Students electing such combination are entitled to take both courses at a total fee of \$20. Repeated if called for.

#### Education

eB (a and b)—History of Education. 2 points each half-year. Miss Whyte

4-5.40 P.M., W. Credit IV. Fee, \$10 each half-year.

This course involves the study of the educational ideas and practices of those historic periods during which conceptions of education based on fundamental principles have been formulated. The principles thus arrived at through the study of the religious, psychological and sociological aspects of education are considered in their application to the subject-matter, method and institutional organization of education as accepted in the prevailing electic conception. The aim of the course is to present the essential features of the educational thought of the past as a basis for the more detailed historic, philosophic and methodic study of the principles of education as formulated in the present.

#### English

# eW1-W2-English grammar and composition. Dr. Taylor

8.45-9.35 P.M., M. and Th. Fee, \$10 each half-year

This course is intended for mature students who feel the need of instruction in the elementary conventions of English expression. eA1-A2—English composition. Lectures, themes and conferences. 3 points. Dr. Taylor

7.20-8.35 p.m., M. and Th. Credit I, IV. Fee, \$15 each half-year This course corresponds to English A in Columbia College.

e1b-2b—The short story. English composition (advanced). Theory of fiction writing. Mr. PITKIN

4.30 P.M., M. Fee, \$15 each half-year

In this course story writing is studied from the point of the literary critic and also as far as possible from that of the writer. Details of construction will be investigated and the student called upon to contrive plots, depict characters and incidents, and to write at least three stories of over 3,000 words each during the year. No special previous training is required, but those wishing to enter the course must submit during the first week a story or sketch of not more than 5,000 words as evidence of competency.

#### French

eA1-A2—Elementary course. 3 points each half-year. Mr. MIL-WITZKY

7.20-8.35 P.M., M. and Th. Credit I, IV. Fee, \$15 each half-year

This course is intended for students who have no previous knowledge of French. The instruction is planned so as to enable students to read at sight ordinary French prose. Reading will constitute a large part of the work of the course. In connection with the reading, a careful study of the essentials of grammar and syntax will be taken up, together with simple composition. Attention will be paid to correct pronunciation and as far as possible to the understanding of simple spoken French.

Text-books: Thième and Effinger, A French Grammar; Grandgent, Materials for French Composition, Part III; Douay, An Elementary French Reader; Daudet Trois Contes choisis; Laboulaye, Contes bleus; Vigny, Le Cachet rouge.

Equivalent to Course A1-A2 as given in Columbia College.

eB1-B2—Intermediate course, grammar, reading and composition. 3 points each half-year. Mr. Milwitzky. If called for by ten students

8.35-9.50 P.M., M. and Th. Credit, I, IV. Fee, \$15 each half-year.

This work will consist: first, of the study of French syntax; second, the reading and translation of French prose; third, of translation from English into French; fourth, of outside reading. As far as practicable, French will be the language of the class-room.

Text-books: Fraser and Squair, French Grammar; Voltaire, Zadig; Lesage, Gil Blas; Sandeau Mademoiselle de la Seiglière; Balzac, Le Curé de Tours; La Fontaine, Fifty Fables; Molière, Le Bourgeois Gentilhomme; L'Avare. Outside reading; Thiers Bonaparle en Egypte.

Equivalent to Course B1-B2 as given in Columbia College.

#### Mathematics

eX1-Algebra, elementary course. Mr. Gordon

7.20-8.10 P.M., M. Tu., Th. and F. First half-year. Fee, \$20.

To cover the college entrance requirements including (1) the four fundamental operations for rational expressions, and topics as lowest common multiple, ratio and proportion, linear equations, radicals, fractions and negative exponents; (2)

quadratic equations, arithmetic and geometric progressions, the binomial theorem and the use of graphical methods.

A course in elementary algebra will be given also in the second half-year if ten or more students register. It is designed for those who find it more convenient to do the work in the second half-year.

#### eY2-Plane geometry. Mr. Gordon

7.20-8.10 P.M., M., Tu., Th. and F. Second half-year. Fee, \$20

The usual theorems and constructions of good text-books, including loci mensuration of lines and plane surfaces. Stress will be laid upon the solution of numerous original exercises.

A course in plane geometry will also be given in the first half-year if ten or more students register. It is designed for those who find it more convenient to do the work in the first half-year.

# eA1—Trigonometry and algebra. 3 points. First half-year. Mr. Gordon

8.10-9.25 P.M., M. and Th. Credit I, IV. Fee, \$15

The subject-matter of this course includes quadratic equations, variations, trigonometric functions, circular measure, relations between the functions, functions of several angles, inverse functions, trigonometric equations, logarithms solution of triangles, complex numbers and the theory of algebraic equations so far as is necessary for the development and use of Horner's method for the solution of numerical equations.

Elementary algebra through the quadratic equation is presupposed.

Equivalent to Mathematics A1 or A4 in the Announcement of Columbia College.

**eA2—Solid geometry.** 3 points. Second half-year. Mr. GORDON 8.10-9.25 P.M., M. and Th. Credit I, IV. Fee, \$15

In addition to the usual theorems on lines, planes and solids, the geometry of the sphere, and the development of space intuition, this course lays special stress upon the purely logical side of the subject and the nature of mathematical proof.

Plane geometry is presupposed.

Equivalent to Mathematics A2 in the Announcement of Columbia College.

## Spanish

e1-2—Elementary course. 3 points each half-year. Mr. Milwitzky 7.10-8.35 p.m., Tu. and F. Credit I, IV. Fee, \$15 each half-year

The aim of this course is to impart an accurate reading knowledge of modern Spanish, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in Course 2 special attention will be paid to Spanish composition.

Text-books: Loiseaux, Spanish Grammar, Elementary Spanish Reader, Spanish Composition; P. A. de Alarcon, El Capitan Veneno; Galdos, Marianela, Doña Perfecta; Carrion y Aza, Zaragueta.

Outside reading: Valera, El Pajaro Verde; Lesage Gil Blas (Padre Isla's translation).

Equivalent to Course 1-2 as given in Columbia College.

**e3-4—Advanced course.** 3 points each half-year. Mr. Milwitzky 8.35-9.50 p.m., Tu. and F. Credit I, IV. Fee, \$15 each half-year

Second year course. A continuation of course e1-2, in which emphasis will be placed on rapid reading of modern prose, on advanced composition and conversation.

Text-books: Hills and Ford, A Spanish Grammar; Crawford's Spanish Composition; Valdés, José; Galdós, Marianela; Valera, El Comendador Mendoza. There will be some outside reading in connection with the course.

Equivalent to course 3-4 as given in Columbia College.

#### Psychology

e141—Applied psychology. Lectures, demonstrations and discussions. First half-year. Dr. Strong

7.30-9.10 P.M., Tu. Credit II, half course. Fee, \$10

Special application of the findings of experimental psychology will be made to practical, everyday, business and professional life. Such topics as testimony, belief, suggestion, crime, habit, efficiency, fatigue, interest, etc., will \_be especially considered.

e142—Psychology of advertising. Lectures, demonstrations and discussions. Second half-year. Dr. Strong

7.30-9.10 P.M., Tu. Credit II, half course. Fee, \$10

The problems of "commanding and holding attention," "arousing further interest" and "securing a response" will be considered in detail. Special attention will be devoted to the explanation of experimental methods of determining the efficiency of advertisements in these respects. Results from actual campaigns will be considered throughout the course.

This course will be given providing a sufficient number register for it.

#### TRENTON

The following courses will be offered by Columbia University in Trenton in the Carroll Robbins Training School, Tyler Street, provided the required number of students register for the respective courses. They will count for degrees for matriculated students, and as advanced standing, according to the rules of the faculties of the colleges of the University.

Information may be obtained from MISS ARRIETTA SNYDER, School Administration Building, Trenton, N. J.

The courses will open Saturday, September 28, 1912 and students may register at the office of Miss Snyder in the Administration Building on Monday afternoons and Saturday mornings in September

#### Education

Education 133a—Theory and practice of teaching in elementary schools. General principles and their application. Lectures, discussions, required readings. Professor HILLEGAS and Miss SNYDER. 2 points

4.15-5.55 P.M., M. 15 periods beginning September 30, 1912. Fee, \$10. Credit IV

The special aim of this course is the formulation of principles of method and their application to the subjects commonly taught in primary and grammar schools.

Education Ab—Educational psychology. Lectures, discussions, required readings. Professor Hillegas. 2 points

7-8.40 P.M., M. 15 periods beginning September 30, 1912. Fee, \$10. Credit IB, IV

This course will present those facts and laws of psychology which are the basis of educational theory and practice.

Education 23—The psychology and education of exceptional children. Dr. Goddard. 2 points

10.45-12.30 p.m., on alternate Saturdays. 15 periods beginning September 21, 1912. Fee, \$10. Credit IV

### English

eA3-English composition. Dr. TAYLOR. 11/2 points

9.45–11 a.m., S. 15 periods beginning September 28, 1912. Fee, \$7.50. Credit I, IV

This course corresponds to part of English A in Columbia College. The work will consist mainly of weekly themes on topics chosen from assigned reading, and of criticisms based largely on the themes. The theory and practice of expository writing will be studied throughout the course.

eA4—English composition. Dr. Taylor. 1½ points 10.45-11.35 A.M., S. 15 periods beginning February 8, 1913. Fee, \$7.50. Credit I, IV

This course is a continuation of eA3.

e23A—Typical forms of English literature. Dr. Taylor. 2 points 11-12.40 P.M., S. 15 periods beginning September 28, 1912. Fee, \$10. Credit I, IV

A study of selected masterpieces typical of the various forms of English literature.

### German

eA3—Elementary German. First half. Mr. Hauch. 2 points 7-8.40 p.m., M. 15 periods beginning September 30, 1912. Fee, \$10. Credit I, IV

No previous knowledge of German is required.

#### ACADEMIC CALENDAR

1912—Sept. 16—Monday, Entrance examinations begin

Sept. 18-Wednesday, Registration begins

Sept. 25—Wednesday, First half-year (159th year) begins Sept. 26—Thursday, Extension Teaching courses begin

Oct. 5—Saturday, last day for changes in registration

Oct. 12—Saturday, last day of registration for credit in first halfyear

Oct. 15—Tuesday, stated meeting of University Council

Nov. 5—Tuesday, Election Day, holiday

Nov. 27—Wednesday, University Service in St. Paul's Chapel Nov. 28—Thursday, to November 30, Saturday, inclusive—

Thanksgiving holidays
Dec. 15—Sunday, Memorial Service

Dec. 17—Tuesday, Stated meeting of University Council

Dec. 23—Wednesday, to Jan. 4, 1913, Tuesday, inclusive— Christmas holidays

1913—Jan. 23—Thursday, Examinations (Extension Teaching) begin
 Feb. 5—Wednesday, Second half-year begins. University Service in St. Paul's Chapel

Feb. 15—Saturday, last day for changes in registration Feb. 18—Tuesday, Stated Meeting of University Council

Feb. 22—Saturday, Washington's Birthday, holiday

Mar. 20—Thursday, to Mar. 24, Monday, inclusive—Easter holidays

Apr. 1—Tuesday, Stated meeting of University Council

May 22—Thursday, Final examinations (Extension Teaching) begin

May 30—Friday, Memorial Day, holiday June 1—Sunday, Baccalaureate service

June 4—Wednesday, Commencement

June 16—Monday, Entrance examinations begin
July 7—Monday, Fourteenth Summer Session opens

Aug. 15-Friday, Fourteenth Summer Session closes

Sept. 15-Monday, Entrance examinations begin

Sept. 17—Wednesday, Registration begins

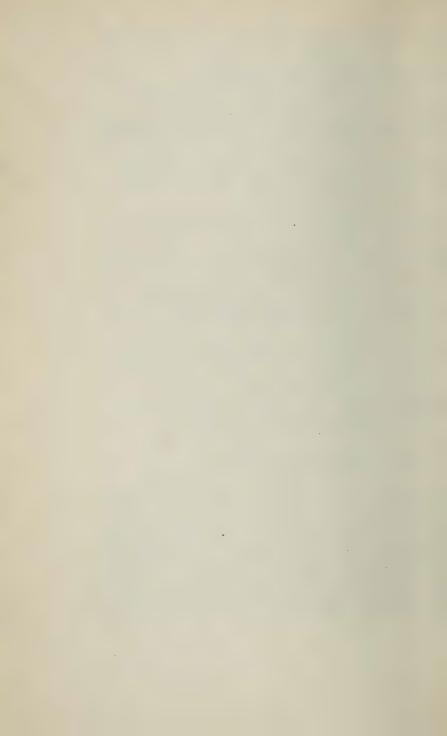
Sept. 24—Wednesday, First half-year (160th year) begins

The academic year is thirty-seven weeks in length, ending on the second Wednesday in June although the actual class work is uniformly assigned to fifteen weeks each half year

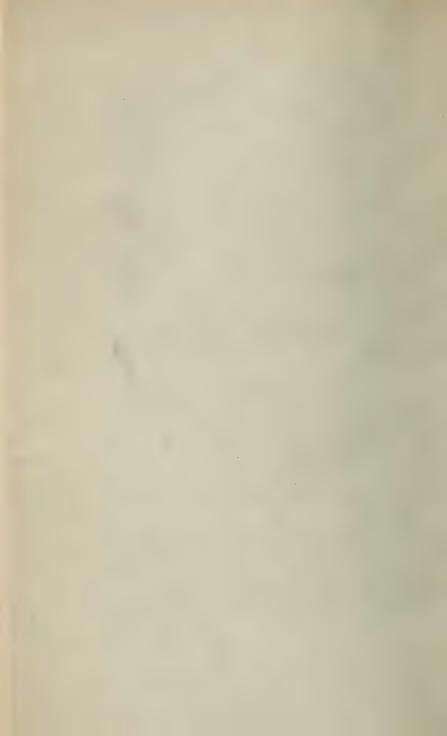
The exercises of the University are suspended on Election Day, Thanksgiving Day and the following two days, for two weeks at Christmas, (December 23, 1912, to January 4, 1913, inclusive), on Washington's Birthday, from the Thursday before Good Friday through the following Monday, and on Memorial Day.

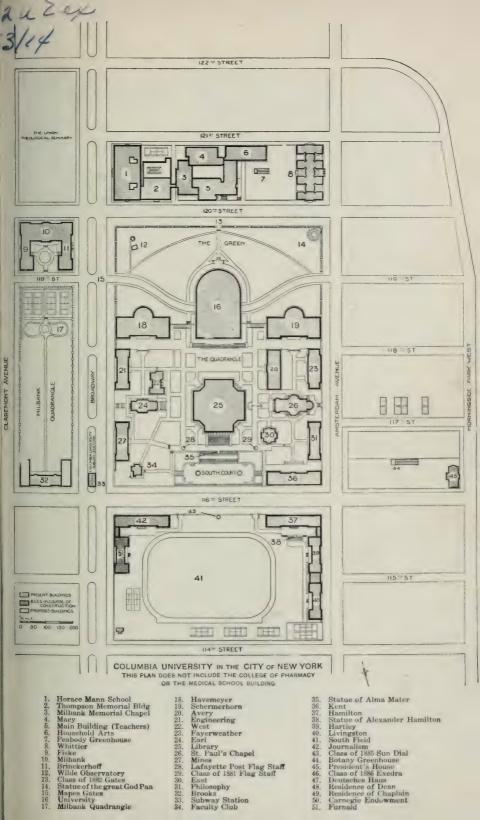
The complete Academic Calendar will be found in the University Catalogue and, so far as it refers to the students studying under any Faculty,

in the announcement of that Faculty.











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#### OFFICERS OF EXTENSION TEACHING 1913-1914

NICHOLAS MURRAY BUTLER
President of the University

#### Administrative Board

JAMES CHIDESTER EGBERT, Ph.D.

Professor of Latin

Director of the Summer Session and Extension Teaching

FREDERICK J. E. WOODBRIDGE, LL.D.

Johnsonian Professor of Philosophy

Dean of the Graduate Faculties

Frederick Paul Keppel, Litt.D.

Dean of Columbia College

VIRGINIA C. GILDERSLEEVE, Ph.D.

Dean of Barnard College

PAUL MONROE, Ph.D.

Professor of the History of Education

Frank Allen Patterson, Ph.D.

Instructor in English
Assistant to the Director, Morningside

MILTON JUDSON DAVIES, A.B.
Assistant to the Director, Institute of Arts and Sciences

WILLIAM K. LANE, A.B.

Assistant to the Director, Brooklyn

Frank Diehl Fackenthal, A.B. Secretary of the University

Frank A. Dickey, A.B.

Registrar

CHARLES S. DANIELSON
Bursar

# 

1911-
LUTHER HERBERT ALEXANDER French
A.B., Toronto, 1883; A.M., 1885; Ph.D., Columbia, 1911; professor, University of Alberta, 1907-08; instructor, College of the City of New York, 1908-12; instructor, Columbia, 1912-
GEORGE MARCUS ALLEN Architecture B.S., University of Utah, 1908.
BENJAMIN McALISTER ANDERSON, JR
MATTHEW GRUENBERG BACH German A.B., Trinity (Conn.), 1910; A.M., Columbia, 1911-
RICHARD FRANZ BACH Architecture
A.B., Columbia, 1908; lecturer, 1910-12; curator, 1912-
FRANK PIERCE BALTZ
JESSE E. BEANS
ALEXANDER O. BECHERT
GOTTLIEB BETZ
A.B., Rochester, 1901; A.M., Pennsylvania, 1911; instructor in Greek and history, Wagner College, Rochester, 1903-10; University scholar in Germanic languages, Pennsylvania, 1910-11; Harrison Fellow in Germanics, 1911-13.
Frederick Reginald Beygrau Stenography and Typewriting
South Penge Park College, London, 1881; Commercial Academy, Chemnitz, 1889; official court stenographer, Canadian Government, 1907; instructor of shorthand and typewriting, West Side Y. M. C. A., and Christian Association of Columbia, 1908-11; lecturer in commercial education, Columbia, 1910; principal, Millburn High School (N. J.), 1910-11; head commercial department, White Plains High School (N. Y.), 1911-12; instructor, High School of Commerce, 1912-13.
DINO BIGONGIARI
ORLANDO CURTIN BOWES

Certified Public Accountant of the State of New York; member of New York State Society of Certified Public Accountants; member of the American Association of Public Accountants; chief accountant of the firm of Westinghouse, Church, Kerr & Company, Engineers, 1904—
WILHELM ALFRED BRAUN
HAROLD CHAPMAN BROWN
CHARLES HOWARD BURNSIDE Structural Mechanics
B.S. (architecture), Columbia, 1898; A.M., 1899; instructor in mechanics, Wisconsin, 1900–03; assistant professor, 1903–09; associate in physics, Columbia, 1909–10; assistant professor of mechanics, 1910–
FREEMAN FOSTER BURR
ROBERT E. CHADDOCK Business and Social Statistics A.B., Wooster, 1900; A.M., Columbia, 1906; Ph.D., 1908; assistant professor, and associate professor, 1911-
ALEXIS L. CLARK
DONALD L. CLARK
JAMES BRUCE COLEMAN
B.S., South Carolina, 1906; A.M., 1910; instructor, Georgia School of Technology, 1907; instructor and adjunct professor, South Carolina, 1909-12; assistant, Columbia, 1912-
WILLIAM FORBES COOLEY
A. JAY CROSS
RICHARD DUDLEY CURRIER
CHESTER A. DARLING A.B., Albion, 1904; A.M., 1906; Ph.D., Columbia, 1909; assistant, tutor and instructor, 1906-

MILTON JUDSON DAVIES. Assistant to Director, Institute of Arts and Sciences A.B., Chicago, 1903; Chautauqua Institution, 1900-03; supervisor of lectures and concerts, Brooklyn Institute of Arts and Sciences, 1904-05; educational director, Central Branch, Brooklyn Young Men's Christian Association, 1906-13.
KATHRINA MODE DAVIS Social Correspondence  A.B., Wellesley, 1901; preceptress in Springfield Academy (Vermont), 1902-04; instructor in English, Connecticut Literary Institute, Suffield, Conn., 1906-09; instructor in English, Hartford Public High School, 1909-12.
FAYETTE BROWN DOW English A.B., Amherst, 1904; LL.B., Columbia, 1909.
BERNARD OGILVIE DODGE
DANIEL B. DUNCAN
EDWARD S. ELLIOTT
JOHN BATES EYSTER
W. O. FARNSWORTH
HERMON WALDO FARWELL
JAMES KIP FINCH
HARRY LINN FISHER
CAMILLE FONTAINE
EDWARD JOSEPH FORTIER  A.B., Tulane, 1904; professor, Notre Dame of Maryland, 1905; instructor, Yale, 1906; associate, Illinois, 1907–10; instructor, Columbia, 1910–
JOHN MONTGOMERY GAMBRILL
CHARLES ROBERT GASTON

JOHN L. GERIG English and Spanis A.B., Missouri, 1898; A.M., 1899; Ph.D., 1902; lecturer, tutor, instructor, assis ant professor and associate professor, Columbia, 1906-
RALPH W. GIFFORD Law A.B., Harvard, 1892; LL.B., 1902; LL.D., Fordham, 1912; admitted to New Yor Bar, 1902; in active practice, 1902-08; professor and Pro Dean of School of Law Fordham, 1907-12; lecturer, Columbia, 1909-10; professor, Yale, 1912-
LOUIS GORDON
RICHARD J. H. GOTTHEIL A.B., Columbia, 1881; Ph.D., Leipzig, 1886; lecturer, Syrian languages an literatures, Columbia, 1886-87; professor of Rabbinical literature and the Semitilanguages, 1887-
ROSCOE GUERNSEY Lati A.B., Union, 1896; Ph.D., Johns Hopkins, 1901; tutor and instructor in classics philology, Columbia, 1903-
ROBERT MURRAY HAIG
HENRY MARION HALL
WALTER HENRY HALL
WILLIAM HALLER
ERNEST M. HALLIDAY
WILLIAM HALLOCK Practical Optic. A.B., Columbia, 1879; Ph.D., Würzburg, 1881; Phar.D., National College o Pharmacy, 1892; adjunct professor, 1892-
CLAYTON HAMILTON
ROBERT A. HARPER
CHARLES ALONZO HARRIMAN

THOMAS H. HARRINGTON Mechanical Drawing C.E., Columbia, 1889; assistant, tutor, instructor and assistant professor, 1894-
Ross Hasbrouck Structural Mechanics S.B., Civil Engineering, Massachusetts Institute of Technology, 1899.
CARLTON HAYES
A.B., Columbia, 1904; A.M., 1905; Ph.D., 1909; lecturer and assistant professor, 1907-; instructor summer session, Chicago, 1911.
Horace G. Healey
FREDERICK W. HEHRE Electrical Engineering E.E., Columbia, 1908; tutor and instructor, 1909-
WILLIAM ADDISON HERVEY German
A.B., Columbia, 1893; A.M., 1894; tutor, instructor, adjunct professor, associate professor, 1896-; registrar, 1908-13.
Frederick William Justus Heuser
A.B., Columbia, 1901; A.M., 1902; assistant, lecturer, tutor, instructor and assistant professor, 1902-
HARRY L. HOLLINGWORTH
A.B., Nebraska, 1906; Ph.D., Columbia, 1909; assistant, tutor and instructor, 1907-
GUY RICHARD HUBBART Advertising and Salesmanship
A.B., Illinois, 1906; editorial and feature writer for The Dry Goods Economist; chief of instruction in the advertising courses of the Economist Training School; ad critic for The Dry Goods Economist; expert on copy, technical features of display and arrangement and sales campaigns; member of the Advertising Men's League of New York City.
EDWARD F. HUMPHREY
A.B., Minnesota, 1903; A.M., Columbia, 1909; Ph.D., 1912; instructor, 1911-
Louis Imbert French
A.B., Missouri, 1906; A.M., 1907; assistant, Illinois, 1908-09; Harrison Fellow, Pennsylvania, 1909-10; instructor, Columbia, 1911-
TOYOKICHI IYENAGA
Ph.B., Oberlin, 1887; Ph.D., Johns Hopkins, 1890; professor, Waseda University and Higher Commercial College, Tokyo, 1890-95; secretary, department of foreign affairs, 1895-97; commissioner of the Formosan government to India, Persia, Turkey and China, 1898-99; professorial lecturer, Chicago, 1901-12.
BENJAMIN BURKS KENDRICK
B.S., Mercer, 1905; A.M., Columbia, 1911; instructor in history and English, Norman Institute, Norman Park, Georgia, 1905–06; instructor in history and English, Industrial High School, Columbus, Georgia, 1906–09; Schiff Fellow in Political Science, Columbia, 1910–11; instructor, School of Journalism, Columbia, 1912–
EDWARD T. KENNEDY
Instructor in swimming, Columbia, 1910-
C. M. Keys Investments
A.B., Toronto, 1897; reporter, Wall Street Journal, 1901; railroad editor, 1905; financial editor, Worlds Work, 1906.

S. BERNARD KOOPMAN
WILLIAM JACOB KRAFT  B. Mus., Yale, 1902; fellow of the American Guild of Organists; Mosenthal fellow, Columbia, 1906; organist, summer session, 1907-; assistant, Teachers College, 1912-
GEORGE KRIEHN.  A.B., William Jewell, 1887; Ph.D., Strassburg, 1892; instructor in history, Johns Hopkins, 1892-94; assistant professor of history, Leland Stanford Junior, 1894-98; art editor, New International Encyclopedia, 1902-06; staff lecturer in the history of art, Cooper Union, 1907-; preceptor in art and archaeology, Princeton, 1911-12; lecturer in the history of art, Extension Teaching, 1912-
DYER B. LAKE  B.S., Syracuse, 1909; M.S., 1910; teacher of physics and chemistry, Alfred, 1910-12; soils assistant, Cornell, 1913-
WILLIAM K. LANE, Assistant to Director, Brooklyn Mathematics A.B., Williams, 1901; instructor, Prospect Heights School, Brooklyn, 1904-; principal, 1909-; graduate student, New York, 1909-
A. ARTHUR LIVINGSTON  A.B., Amherst, 1904; Ph.D., Columbia, 1910; instructor, Smith, 1908–09; tutor, Columbia, 1909–10; assistant professor, Cornell, 1910–11; assistant professor, Columbia, 1911–
Louis Auguste Loiseaux . French Certificat d'études primaires supérieures, Académie de Dijon, 1887; brevet d'instituteur, 1887; B. ès S., University of Dijon, 1894; tutor, instructor, adjunct professor and assistant professor, Columbia, 1892-
ROBERT HAMILTON LOMBARD
MARGARET E. MALTBY  A.B., Oberlin, 1882; A.M., 1891; S.B., Massachusetts Institute of Technology, 1891; Ph.D., Goettingen, 1895; instructor, Wellesley, 1889-93 and 1896-97 instructor, adjunct professor, assistant professor, associate professor, Columbia 1900-
ELIAS MARGOLIS Semitic Languages A.B., Cincinnati, 1900.
CHARLES T. McFarlane

B.S., Ohio State, 1894; A.M., Columbia, 1896; Ph.D., 1899; assistant, tutor,

. Zoölogy

JAMES HOWARD McGregor . . .

Columbia, 1903-DUDLEY H. MILES

A.B., Scarritt-Morrisville, Missouri, 1900; A.M., Vanderbilt, 1908; professor, Scarritt-Morrisville, 1903–06; instructor, Vanderbilt, 1907–12.	
THEODORE C. MITCHILL	
WILLIAM PEPPERELL MONTAGUE	
ROBERT H. MONTGOMERY	
O. S. MORGAN	
HENRI FRANÇOIS MULLER French B. ès L., University of Paris, 1897; tutor and instructor, Columbia, 1903-; Ph.D., Columbia, 1913.	
DAVID SAVILLE MUZZEY	5
ARTHUR C. NEISH	
J. LEE NICHOLSON	
F. S. Nowlan	

Marjorie O'Connell	Geology
A.B., Columbia, 1911; A.M., 1912; assistant, summer session, 1912.	677
CHARLES PACKARD	Zoölogy
B.S., Syracuse, 1907; M.S., 1908; instructor in biology, Williams, assistant in zoölogy, Columbia, 1910-	1908-10;
HARRY VICTOR E. PALMBLAD	German
A.B., Columbia, 1907; A.M., 1910; instructor, Western Reserve, instructor, Columbia, 1912-	1911-12;
FRANK ALLEN PATTERSON, Assistant to Director, Morningside .	English
A.B., Syracuse, 1904; A.M., Columbia, 1907; Ph.D., 1911; assistant,	
1903-04; instructor in summer school, Syracuse, 1904; instructor, Blees Academy, Macon, Missouri, 1904-06; associate, Illinois, 1911-12; i	
Columbia, 1912-	iisti uctor,
GEORGE A. PFEIFFER	hematics
M.E., Stevens, 1910; A.M., Columbia, 1911; assistant, 1911-	
ROBERT MORRIS PIERCE	English
Massachusetts Institute of Technology, 1887-89; Harvard, 1892-94	
burg, 1894; Pennsylvania, 1895-97; Chicago, 1898; editor with G. Hem	
Passy of the International French and English Dictionary (Hinds & Nobl Wilhelm Tell in the Ideofonic Texts; editor, the Dictionary of Hard Wor	
Mead & Co.); editor, Dictionary of Aviation (Baker & Taylor Co.) 1911	
ALBERT T. POFFENBERGER, JR	sychology
A.B., Bucknell, 1909; A.M., Columbia, 1910; Ph.D., 1912; asssistant and	d lecturer,
1910-	
	hitecture
B.S., Trinity College (Hartford), 1908; candidate for M.S., 1913;	
instructor in mathematics, 1907-08; tutor in structural design, Columbia,	
ALLEN WILSON PORTERFIELD	German
structor, 1907–	and in-
	chitecture
Diplome d'Architecte, 1900; premier second grand Prix de Rome, 190	
gold medal Salon des Champs Elysées, 1904; officier d'Académie, 1906;	professor
of design, Cornell, 1904-06; associate, Columbia, 1910-	
JOHN DYNELEY PRINCE	
A.B., Columbia, 1888; Ph.D., Johns Hopkins, 1892; fellow, 1890-91; courtesy of Johns Hopkins, 1891-92; professor, New York, 1892-1901	
graduate school, 1895–1901; fellow, New York Academy of Sciences, 190	
American Association for the Advancement of Science, 1912; professor, (	
1902-	
RUTH WEIR RAEDER	Geology
A.B., Wellesley, 1908; A.M., 1911; assistant, 1908–11; assistant, Columb instructor, summer session, 1912, 1913.	1a, 1912-;
GERARD ALSTON REICHLING	German
A.B., Columbia, 1908; candidate for A.M., 1913.	acrinan
ALFRED E. REJALL Educational Ps	svchology
A.B., Columbia, 1906; A.M., 1907; scholar in education, 1906-07;	
psychology, 1907-08; assistant professor of philosophy and psychology, I	New York
State Normal College, Albany, 1909-12; assistant in psychology, Columbia,	, 1912–13.

EDWARD M. SAIT
FRANK CHARLES SCHROEDER
HENRY H. L. SCHULZE
ROBERT LIVINGSTON SCHUYLER
HERBERT N. SHENTON
FRANK DEMPSTER SHERMAN Architecture Ph.B., Columbia, 1884; instructor, adjunct professor, professor, 1889-
JAMES THOMSON SHOTWELL
EDWARD R. SMITH
HARRISON ROSS STEEVES English A.B., Columbia, 1903; A.M., 1904; assistant, tutor and instructor, 1905–
WILLIAM S. STEVENS
WILLIAM WARREN STIFLER
EDWARD KELLOGG STRONG, JR
ALGERNON TASSIN
RUPERT TAYLOR
CALVIN THOMAS

A.B., Wofford, 1896; A.M., Columbia, 1901; Ph.D., 1908; head department of English, Florida State, 1903-05; dean, 1905-11; head, department of English, Polytechnic Institute of Brooklyn, 1911-
FREDERICK A. VANDERBURGH
CARL VAN DOREN English A.B., Illinois, 1906; A.M., 1907; Ph.D., Columbia, 1911; assistant, Illinois, 1907-08; instructor, Columbia, 1911-
ARTHUR WARE Architecture B.S., Columbia, 1898; associate, 1912-
HERBERT L. WHITTEMORE Mechanics B.S., Wisconsin, 1903; Mech.E., 1910; instructor, Columbia, 1912-
Louis R. Welzmiller
BLANCHE COLTON WILLIAMS Short Story A.B., Mississippi State College for Women, 1898; A.M., Columbia, 1908; Ph.D. 1913.
OLIVE WILLIAMS.  Leland Stanford, 1892-95; apprentice, Columbia, 1896-97; cataloguer, 1897-99; classifier and reviser, 1900-1907; supervisor of filing systems, Texas Oil Company, New York, 1907-12.
HENRY PARKER WILLIS
SAMUEL LEE WOLFF
FREDERICK A. WOLL
THEODORA ETHEL WYE  Diploma, Michigan State Normal College, 1900; B.S., Columbia, 1907; assistant in Latin and Greek Columbia, 1909-

### INTRODUCTORY

The statutes of the University (Section 230) define Extension Teaching as "instruction given by University officers and under the administrative supervision and control of the University, either away from the University buildings, or at the University, for the benefit of students unable to attend the regular courses of instruction."

## Students

Courses in Extension Teaching are planned for two classes of students,—first, men and women who can give only a portion of their time to study and who desire to pursue subjects included in a liberal education of the character and grade of a college or professional school, but without any reference to an academic degree,—second, those who look forward to qualifying themselves to obtain in the future academic recognition, involving acceptance of the work which they may satisfactorily complete in Extension Teaching.

Students who are duly admitted to Extension courses but are not candidates for a degree or diploma are termed non-matriculated students. Students who have completed the requirements for admission and have been formally admitted by or in behalf of the Faculty concerned as candidates for a degree or diploma, are termed matriculated students.

### Courses of Instruction

Under the direction of the University Council courses are offered in Extension Teaching which count toward the degree of A.M.

Regular courses of instruction are offered in Extension Teaching which in many instances are co-ordinated so as to form at least the first year of collegiate and professional work thus providing in the evening at Morningside Heights, and elsewhere, courses in subjects which are generally offered in the Freshman and Sophomore years of college, so that students may qualify themselves for admission with advanced standing to Columbia College and Barnard College as candidates for the degrees of A.B. and B.S.

There are also offered at Morningside Heights in the evening subjects which are given in the Schools of Mines, Engineering and Chemistry, so that a student may pursue some special line of scientific study or prepare himself for the second or third year in these schools. Beginning with September, 1914, courses in these schools will be open only to those who have had a preliminary course of three years in Columbia College or the equivalent. This preliminary collegiate course may be taken in part or in full in Extension Teaching in the evening by students engaged in business during the day. See p. 6.

Evening courses are offered in architecture at Morningside Heights and Brooklyn which correspond to courses of the Columbia University School of Architecture.

Evening courses in Commerce and Finance, forming a threeyear course leading to a certificate in commerce and preparing for the State examination for the certificate of Certified Public Accountant are given at Morningside Heights. A special circular describing these courses in detail will be mailed upon request. See also p. 23.

A series of courses intended to equip students for the position of secretary is also offered. The completion of these courses will require three years for high school graduates, and at least one year for college graduates. These courses are carefully described in a special circular which will be mailed on application. See also p. 58.

Many courses are offered which aid a student to prepare for the Schools of Law, Medicine and Journalism or to complete his preparation for Columbia College or for the scientific schools.

A two year course in practical optics is offered in co-operation with the Department of Physics for the special training of those who expect to become optometrists. A special circular will be mailed upon request. See also p. 48.

Courses are offered in agriculture for those who desire special work in that subject.

A large number of other courses in varied subjects is given late in the afternoon and on Saturday which repeat those in liberal studies offered in the Colleges of the University. These are given in the same manner and often by the same instructors as the regular courses. In many instances university credit is granted.

Numerous courses are given at various centres. These are either regular courses of collegiate grade or short lecture courses without academic credit.

Lecture-study courses in certain subjects forming thirty lectures alternating with quiz or conference hours are given at Morning-side Heights and at centres when requested.

Centres for the study of choral music are maintained at Morningside Heights, Brooklyn and Yonkers, and large choral concerts are given during the year.

The Department of Extension Teaching maintains also the Institute of Arts and Sciences.

## Registration

Students who expect to attend at Morningside Heights are required to register at the office of the Registrar, 201 East Hall, 116th Street and Amsterdam Avenue. A student in Extension Teaching will register for one half-year and is required to renew his registration in person at the beginning of the second halfyear. Fees must be paid at the time of registration. (See p. 4). Students will be allowed to attend one lecture before registration and payment of fees. The Registrar's office, room 201 East Hall. in addition to the regular daily hours (9 A.M. to 5 P.M.) will be open (except on Saturday), from September 22 to October 3, 1913, and from January 29 to February 13, 1914 from 7 to 9.30 P.M., and thereafter from 7 to 9 P.M. The Saturday hours are from 9 to 12. Payment of fees should be made at the office of the Bursar in the same building. Students intending to take courses in any centre will register at that centre in accordance with instructions given in the statements introductory to these courses.

Candidates for admission as matriculated students will be permitted to register provisionally subject to the presentation of satisfactory credentials. Record of attendance will date for matriculated students from Thursday, September 25, for the first term, and from February 4, 1914, for those entering in the second term.

Students desiring credit are not allowed except for reasons of weight determined by the Director to register later than October 11, for the first half-year and February 20, for the second half-year.

Matriculated students in the various schools of the University will be allowed to attend courses in Extension Teaching in accordance with the regulations of the several schools; they must, however, register and pay the fees in the same way as other students in Extension courses. Matriculated students will be required to take at least one course of three hours, or two courses of one and one half hours per week, but cannot exceed two periods of classroom work or four hours of laboratory work per day.

### Fees

All students, matriculated or non-matriculated, admitted to Extension courses, must pay at the time of registration the fees determined by the Administrative Board. The fees for Extension courses are determined as a rule at the rate of \$5 per point, i.e., for one hour per week of classroom work, or two hours of laboratory or drawing-room work, through a half-year. All new students must pay a registration fee of \$5.00, which is payable but once in the University. Students taking six points each half-year have the privileges of the library and, in the case of men, the university gymnasium. An Extension student may use the dormitories if he registers for courses aggregating ten points, maintains a grade of C in all subjects and attends nine-tenths of the sessions in each half-year.

Unless otherwise directed, students must pay all fees at the office of the Bursar. This office is open daily from 9.30 A.M. to 3.30 P.M.; Saturday morning from 9 to 12. The office will be also open every evening from 7 to 9 P.M. (except Saturday) from September 22 to October 10, 1913; from October 13 to 31, on Monday and Friday evenings only. It will also be open every evening 7 to 9 P.M. from January 29 to February 13, 1914; from February 16 to 27, on Monday and Friday evenings only.

Fees must be paid before entering upon the course.

Cards of admission indicating that the student has properly registered and paid his fees will not be sent to the instructor until such payment is made. The fees and points as stated with the various courses are for the half-year.

Should a student desire to withdraw from a course he is liable for the fee up to the end of the half-year in which notice of withdrawal is received. A student desiring to add or drop a course after the second Saturday of either half-year will be compelled to pay a fee of \$1 for such change.

Students in courses in local centres will either pay the fee arranged by the local centre or the usual fees described above. Students will pay fees to the treasurer of the local centre unless otherwise directed. Extension students taking courses in local centres who desire to receive credit for their work must fulfil all the requirements of matriculation described above.

#### Admission

No examination is required for admission to courses offered in Extension Teaching, but students must satisfy the Administrative Board that they can pursue the courses with advantage. It is expected that the prospective students in all collegiate and professional courses shall have had a full secondary school education. The courses are open, unless it is otherwise stated, both to men and women. Admission to a course is determined by the Administrative Board according to the qualifications of the student, and the privilege of attendance upon a course which the student is found unfitted to pursue with advantage will be withdrawn.

## Office

The office of Extension Teaching is Room 306 Philosophy. Full information as to this department may be obtained at this office, which is open from 9 to 5 daily, Saturday 9 to 4. This office will be open in the evening from 7 to 9.30, September 15 to October 11 and February 2 to 11, 1914. When the office of the Director is not open, students are referred to the office of the Registrar, East Hall.

### Location

Collegiate and professional courses will be given at Columbia University; in the Prospect Heights School, 51 Seventh Avenue, near Lincoln Place, and three blocks from Flatbush Avenue, Brooklyn; in the Carroll-Robbins High School, Trenton, New Jersey; in the Newtown High School, Elmhurst, Long Island; in Jersey City and Paterson, New Jersey, and wherever classes of sufficient numbers may be gathered. The most convenient means of access to the University are the Subway (Broadway Branch) to 116 Street, Columbia University Station; or the Sixth or Ninth Avenue Elevated to 110 Street Station, or 116 Street Station; and Broadway or Amsterdam Avenue surface lines.

The Prospect Heights School may be reached by Bergen Street, Vanderbilt Avenue, and Seventh Avenue cars. It is within walking distance of the Subway and Atlantic Avenue Station.

## Calendar and Hours

Columbia University opens on September 24 and Extension courses begin Thursday, September 25. The academic calendar calls for thirty weeks of actual class-work. The examination period for the first half-year begins January 26. The second term will open February 4. The examination period for the second half-year begins May 25. The examinations are given in the hours usually assigned to recitations and lectures. The calendar for Extension Teaching is the academic calendar of the University, except in regard to examinations. There will be

no classes in Extension Teaching on the following days: Election Day, November 4; Thanksgiving Day and the two days following (November 27, 28 and 29); December 22 to January 3, inclusive; February 23; April 9 to 13, inclusive; May 30. There will be classes on February 12. See p. 73.

Extension courses are usually given in the afternoon after four o'clock, in the evening of every week day and on Saturday.

Attention is called to the restaurant service at the University Commons maintained for the use of students. Dining-rooms for men and women are located in University Hall in which meals may be obtained at moderate rates.

A rest room for women students is located on the first floor of the Philosophy Building, open in the morning and afternoon.

#### Commerce

Columbia University through its Extension Teaching offers evening courses in Commerce and Finance. (See p. 23).

The object of these courses is to give a thorough training for those who desire to enter upon a business career immediately after leaving high school, and also to provide for the college student instruction in the principles of business and a more exact knowledge of commerce and finance. The intention is to prepare students for the examinations for the certificate of Certified Public Accountant as well as to give a special training for business.

At the close of each half-year students will receive from the Registrar a report of standing and those who have completed the course in a manner satisfactory to the Administrative Board will receive at the close of three years a certificate signed by the Director of Extension Teaching. In order to be eligible for a certificate covering the entire course a student must secure 62 points. These courses are described in detail in a special circular, which will be mailed upon request.

The courses in Commerce are given every evening at Morningside Heights, 116th Street and Amsterdam Avenue, adjoining the 116th Street Station of the Broadway Branch of the Subway.

## Engineering Courses

In taking classes in engineering and allied subjects in Extension Teaching a student may adopt one of two methods in arranging his studies. (1) He may select only the class or classes in which he is especially interested, and which will be of most immediate assistance to him in his present work. In every case he must be careful that he possesses all the prerequisites to each course he pursues. Extension Teaching offers many classes of this nature, planned especially for mature students already engaged in engineering work, and at liberty to devote only a few evenings a week to professional study. These courses just described do not lead to any degree, though some of them bear credit applicable to degrees, when other conditions have been fulfilled, as stated below. (2) He may plan his work in such a way that when supplemented by day attendance it will lead ultimately to a degree in engineering. No degree is given for work taken exclusively in the evening.

After this year a student desiring to matriculate in the Schools of Mines, Engineering and Chemistry will be required to present, in addition to the regular four years of the preparatory school, at least three years of collegiate work. The following excerpt from a recent circular issued by these schools will give an idea of the new requirements.

"Beginning in September, 1914, the requirements for admission to the professional work in Mines, Engineering and Chemistry, will be increased so as to require of candidates for admission not only a broad foundation in Mathematics, Chemistry and Physics, but training in English, Modern Languages and in the fields of History and Political Science. The new professional course will be three years in length.

The purpose of this important change is to offer better and broader training for students of engineering, and to place the instruction in these professional subjects upon the same university plane as the instruction in law and medicine. The recent rapid development of engineering practice, the wider social and public recognition now given to the engineering profession and the frequent demands that men in executive and administrative posts shall have had an engineering education, make it imperative that the engineer of the future shall be a broadly educated professional man and not merely a technical expert. In order to insure this it is necessary that the future engineer shall widen his intellectual outlook by continuing his general education considerably beyond the limits of the ordinary high school course. Distinguished engineers among the alumni of Columbia University are already sending their sons through a college course as a preliminary to entering upon the professional study of engineering. At the present time, even before the proposed new

system is in operation, fully one hundred students in Columbia University are taking advantage of the existing opportunity to combine a college and engineering course covering six years of study."

Extension Teaching has provided a schedule whereby a student by studying in the evening can complete the three years of college mentioned above. He will then be allowed to enter the Schools of Mines, Engineering and Chemistry, provided always that he has satisfied the requirements in regard to the work of the preparatory school. The collegiate course, outlined below, is that recommended by the Faculty of Applied Science in Columbia University. In order to avoid conflicts the subjects should be taken in the order suggested.

## FIVE YEAR COLLEGIATE SCHEDULE

## First Year

First Half	Second Half		
English eA1 3 Mathematics e1 2 French eA1 or German eA1 or French eB1 or German eB1	English eA2		
Elective 2	Elective 2		
10	10		
Second	i Year		
History eA1	History eA2		
Third	Year		
Chemistry e67       5         English eB3       3         Drafting e3       3	Chemistry <b>e68</b>		
Elective 2	Elective 2		
13	13		

## Fourth Year

Physics e Philosophy eA1 Elective	3	Philosophy	3
	Fifth `	Year	

Economics e1       3         Mineralogy e1       3         Mathematics e17       3         Elective       3	Politics e4       3         Mechanics e2       3         Mathematics e18       3         Civil Engineering e2       2         Elective       2
12	

Students desiring to secure a baccalaureate degree in addition to the professional degree should plan to take the last year of the above course in Columbia College and should arrange to take Philosophy eA1-2 earlier in the course.

## Scholarships

A scholarship, affording free tuition in the graduate courses of the Schools of Mines, Engineering and Chemistry will be given each year to the student who completes the above outlined evening course with the highest record.

### Secretarial Courses

The Department of Extension Teaching has provided for men and women a series of courses given in the afternoon and evening which will lead to a certificate in secretarial studies.

The object of these courses is properly to equip students who desire to become private secretaries or to hold important positions in offices as assistants to public officials or to persons engaged in professional pursuits. The students who undertake these courses in full must have had a high school education or its equivalent. A complete series will demand three years, although this may be reduced by attendance at Summer Sessions or by obtaining advanced standing on the presentation of evidence of having completed any course or its equivalent.

Students may make use of the late afternoon courses as well as those in the evening. These courses are described in detail in a special circular, which will be mailed upon request.

## The Institute of Arts and Sciences

The Institute of Arts and Sciences is a division of the Department of Extension Teaching. The aim of the Institute is to provide a popular late-afternoon and evening program consisting of university extension lectures and addresses and also of other events of a cultural nature.

The program is planned for busy men and women. The scope includes single lectures and short series of lectures on history, literature, art, music, geography, science and on current economic and social problems; also illustrated travel lectures, recitals, dramatic readings and vocal and instrumental as well as chamber music concerts by first class artists.

The annual dues are \$10 payable in advance with an enrollment fee of \$5 payable only once provided the enrollment does not lapse. The enrollment fee, however, will not be required of the first thousand members.

A member of the Institute will be entitled to free admission for himself and one other person to all the lectures and other events on the regular evening program, but in the afternoon only one person will be admitted on the ticket. The ticket will be transferable. Altogether the membership tickets will include free admission to approximately 250 lectures, readings, recitals, etc. throughout the season. A member will be entitled also to reduced rates for reserved seats to the special or more costly events offered in addition to the regular events. The program will continue from October to April, beginning October, 1913.

Auditoriums on the university campus will be used, and it is likely that a centre will also be established in Harlem and later in lower Central Park west.

A special pamphlet describing in detail the program of the Institute will be mailed upon request.

# Regulations Governing Credit toward the Degrees of A.B. and B.S., Columbia College, Barnard College, and Teachers College

Students of Columbia College, Barnard College and Teachers College will be allowed to attend Extension courses which are approved by the Committees on Instruction and will be allowed to count them toward the degrees of A.B. and B.S. under the following regulations;

1. The election of Extension courses must be approved by the Committees on Instruction.

- 2. Students will not be allowed to exceed a total of 19 hours per week in Columbia College, 16 hours in Barnard College, or 16 hours in Teachers College including the hours of Extension courses, save for reasons of weight and by the special permission of the Committees on Instruction.
- 3. Students desiring these courses to count toward the degrees of A.B. and B.S. must obtain at least a grade of C.
- 4. Matriculated students electing Extension courses after having obtained the approval of the Committees on Instruction must register for these courses at the office of the Registrar and pay the fees required for such courses.
- 5. Students matriculated in Teachers College who are taking courses in Extension Teaching with a view to counting such work in partial fulfillment of the requirements for the degree of B.S. in Education are referred to page 29 of the Announcement of the School of Education for 1913-14 for a statement in reference to a reorganization of Teachers College by which the School of Education becomes a graduate school in certain departments after July 1, 1914. This reorganization affects in particular all students preparing to teach in secondary schools such academic subjects as biology, English, French, German, geography, history, Latin, mathematics, physics, or chemistry; upon students specializing in these departments no Bachelor's degree will be conferred after June, 1915, making it necessary for all such students to finish all requirements for the Bachelor's degree by June, 1915.
- 6. No degree is given for courses taken exclusively in Extension Teaching.

## Courses in Teachers College

Teachers College in its School of Education offers to matriculated students a number of its regular courses at hours in the afternoons and on Saturday mornings which are convenient to teachers. These courses include the History and Philosophy of Education, Educational Administration, Educational Psychology, Secondary Education, Elementary Education, Kindergarten Education, and certain courses on the methods of teaching academic subjects.

The College offers also in its School of Practical Arts, at similar hours and in the evenings, some regular and a number of special classes in Foods and Cookery, Sewing and Textiles, Household Administration, Nursing and Health, Household Chemistry, Fine Arts, Music, Physical Education, Wood-working, Metal-working. Drawing, Designing, etc. These special classes in the practical arts are open to all who are qualified to enter them.

Students matriculated or expecting to matriculate in Teachers College are referred to No. 5 above.

For further information see the special circular of Afternoon, Evening and Saturday Morning Courses and Special Classes which may be had on application to the Secretary of Teachers College.

## Relation of Extension Teaching to other University Work

- 1. Students taking Extension courses who desire to become candidates for the A.M. degree should make application to be received as such to the Dean of the Graduate Faculties, Room 305 East Hall. The requirement for admission to the University as candidate for the A.M. degree is the diploma of A.B. or B.S. or its equivalent from an approved college or scientific school.
- 2. Students taking Extension courses who desire to become candidates for the degree of Bachelor of Arts or Bachelor of Science or for professional degrees in Science, Law, Medicine, Journalism, and Practical Arts should make application to be received as such to the Committee on Undergraduate Admissions, Room 310 East Hall. The requirement for admission to the University as a candidate for these degrees is set forth in the Announcement of Entrance Requirements for 1913-1914, which may be obtained on application to the Secretary of the University.
- 3. Students taking Extension courses who desire to become candidates for a diploma in teaching and the professional degree of Bachelor of Science in Education or the degree of Bachelor of Science in Practical Arts should make application to be received as such to the Secretary of Teachers College. For full information in reference to the requirements for admission to the School of Education or the School of Practical Arts of Teachers College, also apply to the Secretary of Teachers College.
- 4. Students using Extension courses for the purpose of securing entrance credits must consult Professor Adam Leroy Jones, Room 310 East Hall. For admission to Barnard College students should consult the Dean of Barnard College before registering.

### Attendance

For credit toward a degree or for a certificate of proficiency, attendance at nine tenths of the sessions is required in addition to the proficiency attested by examination.

#### Absences

It is a student's duty to attend punctually each class or laboratory exercise in each course. A student may be absent without penalty in a half-year as follows: from a course meeting once weekly, twice; from a course meeting twice weekly, three times; from a course meeting three times weekly, four times; and from a course meeting four times weekly, five times.

In case this limit is exceeded, a student receiving a grade of D shall not be entitled to credit for that course; a student receiving a grade of C or higher may submit a statement showing the cause of each absence. If, in the judgment of the Administrative Board, these causes were imperative, full or partial credit for the course may be assigned by the Director upon the recommendation of the Administrative Board, in accordance with the extent and reason of the student's absences and the standing attained in the course.

Tardiness shall count as half an absence.

#### Examinations

Two examinations are regularly held, one at the close of the first half-year and the second on the termination of the course. For examination at special times the fee is \$5 for each course.

Students who fulfill the conditions of registration, attendance and accomplishment of work prescribed, together with the payment in full of the fee for the course, will receive a report of standing from the Registrar within three weeks after the close of each half-year.

The student's performance in a course is reported according to the following grades: A, excellent; B, good; C, fair; D, poor; F. failure. In graduate courses P indicates passed, F, failure. H indicates a record of satisfactory attendance only.

## Library Privileges

The Library of Columbia University and the Bryson Library at Teachers College are open for reference to all students registered in Extension Teaching. All instructors, and non-matriculated students taking courses amounting to at least six points, have the privilege of withdrawing books.

### Local Centres

To facilitate the work of instruction away from the University, the Administrative Board may institute local centres. Local centres may be established wherever a local community or a local organization undertakes to offer, year by year, one or more of the Extension courses of the University. Local boards of

education, teachers' associations, schools, societies, and clubs, desirous of offering Extension courses may be constituted local centres. In general, however, a special local committee (president, secretary, treasurer, and five members representing the particular community) is the usual organization of the local centre.

Local centres are responsible, through the local committee, for the effective arrangement of Extension courses they offer. They determine the courses in co-operation with the Director; they enlist local interest; they provide, by fees or the sale of tickets or otherwise, for all the expenses of their work—the course fee, the cost of syllabi, the travelling expenses of the lecturer, lecture-hall, janitor, printing and advertising, and when lectures are to be illustrated they must provide the lantern and operator. The Administrative Board will establish and conduct local centres where suitable arrangements may be made and sufficient guarantees secured.

Number of Students
Taking courses in Extension Teaching

rermanent centres								
Year	Morningside	Brooklyn	Newark	Total	Percentage of increase over preceding year	Percentage of increase over 1910-1911	Temporary	Grand Total
1910-11	922	55	56	1033	_	_	279	1312
1911-12	1329	50	54	1433	38.72	38.72	167	1600
1912-13	2016	65	67	2148	49.89	107.93	164	2312

### COURSES OF INSTRUCTION

NOTE.—The University reserves the right to withdraw, substitute or change any courses which are named in this statement.

Courses corresponding and equivalent to prescribed courses of Columbia College are designated by letters: A, B. A1, B1, refer to the first half-year's work (September-January) in such a course; A2, B2, to the second half-year's work (February-May). In numbered courses, odd numbers designate the first, even numbers the second, half-year.

In the statement of each course the prerequisites are indicated except that the equivalent of the first half of a hyphenated course (e. g., Botany e1-2) is usually assumed to be a prerequisite for

admission to the second half.

## Credits

The academic credit that may be awarded to students who give evidence of having completed the prerequisite work required by the several faculties is regularly indicated in connection with the statement of each course.

All courses marked Credit I-May be counted toward the degrees of A.B. and B.S. in Columbia College and Barnard College. The question of credit must be determined finally on consultation with the Committees on Instruction of the various Faculties.

IA-May be counted toward the degree of Mus. B. only.

IB-May be counted toward the degrees

of A.B. and B.S. in Barnard College only. Ic—May be counted toward the degrees

of A.B. and B.S. in Columbia College only.

All courses marked Credit II-May be offered by graduate students toward the degree of A.M. Open also to undergraduates on the approval of the appropriate Committee on Instruction obtained in advance.

All courses marked Credit IV-May be counted toward the degree of B.S. in education and toward the appropriate diplomas in teaching, and as a professional option toward the degrees of A.B. and B.S. See p. 11.

All courses marked Credit V-May be counted toward the appropriate degrees in the Schools of Mines, Engineering and Chemistry, and Architecture.

Any course numbered 100 or above may be counted for undergraduate degrees under the general rules.

The fees and points as stated with the various courses are for each half-year.

Accounting, p. 23

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## Agriculture

Columbia University, through its Extension Teaching, offers courses in agriculture. These courses may, with the approval of the Committee on Instruction, form part of the curriculum leading to the degree of B.S. for students of Columbia College. They will also be open to students who desire to take courses in agriculture alone.

It is recommended that students planning to study agriculture should enter Columbia College and take the subjects prescribed for the B.S. degree. In addition to the courses in agriculture, the student should take American history 13–14, Chemistry A, Economics 1–2, Politics 1–2, Botany 1–2, Geology 1–2, and Zoölogy 1–2. For these courses, see below.

Courses e1-2 will be open to those who are regular students of Columbia University and to those who have had sufficient academic preparation to profit by the instruction offered. Courses e3-4, e5-6, e7-8, e9-10 and e11-12 are open to any qualified student.

e1-2—Principles of agriculture. Lectures and laboratory. 3 points each half-year. Professor Morgan

9.10-12 A.M., S., Room 516 Schermerhorn; laboratory 9.30 A.M., W., Room 502 Schermerhorn. Credit I, IV. Fee \$15 each half-year

The object of this course is to give the student entering the study of agriculture a clear understanding of the main problems and principles of present day scientific agriculture. In the fields of plant and animal husbandry the following topics will be treated in lecture and laboratory work; soils, soil management, drainage, fertilizers, field crops, crop rotations, orcharding, gardening, marketing, and farm management. Animal husbandry will be accorded its place in farming but will not be treated specifically. (See e3-4)

e1a-2a—Course e1-2 with laboratory work omitted. 2 points each half-year. Fee \$10 each half-year

e3-4—Animal husbandry. Lectures and laboratory. 3 points each half-year. Mr. Bowes

1.10 p.m., Tu. and Th., Room 516 Schermerhorn; laboratory, 2-4 p.m., Th. Credit I. Credit IV if specially approved before registration. Fee \$15 each half-year

The object of this course is to give an introduction to both the theory that underlies the management of cattle, horses, sheep, swine and poultry, and also the current practices of the management of these farm animals. Excursions to nearby modernly equipped and operated farms will, besides regular laboratory exercises, be essential parts of the course.

## e5-6-Special lectures in agriculture

4.30 P.M., W., Room 305 Schermerhorn. Sixteen lectures. Fee \$10 for the course, or \$1 per lecture

These lectures will be open to the public. They will be given by agricultural experts in their specialties. The lectures will begin Wednesday, November 19, 1913. The first lecture of the series will be free to all who contemplate attending the course and will deal with the general problems that all operators of farm lands should carefully consider.

e7-8—Soils and fertilizers. Lectures and laboratory. 3 points each half-year. Mr. Lake

2.10 P.M., M. and F., Room 301 University Hall; laboratory 3-5 P.M. Credit IV. Fee \$15 each half-year

Principles of soil management, given the first half-year, deals with the origin composition and properties of soils; the physical, chemical and bacteriological factors, and economic deductions relating to machinery, crops and farm management.

Fertilizers, manures and soil amendments, given the second half-year, deals with soils and crop problems in agriculture from the standpoint of soil fertility, the supply in the form of manure, etc., and the practical economic consideration of maintaining and increasing the crop producing power of farm lands.

e9-10—Principles of horticulture. Lectures and laboratory. 3 points each half-year. Dr. Darling

4.10 p.m., Tu. and Th., Room 505 Schermerhorn; laboratory 2.10-4 p.m., Tu., Room 502 Schermerhorn and in greenhouse. Credit IV. Fee \$15 each half-year

Vegetable growing will comprise the chief part of the work of the first half-year; preparation of soil, composts and seed for planting; hot beds and cold frames, transplanting, forcing, culture, companion cropping, spraying, harvesting, storage and marketing will be the main topics considered for kitchen, farm and market gardening projects. Flower gardening will receive only minor consideration.

Fruit growing, both small and tree, will be the major consideration of the second half-year. Propagation, planting, intercropping, management in unproductive and productive periods, spraying, harvesting, storage and marketing; pruning, spraying, budding and grafting in their proper relation to fruit farming, and special problems in vegetable and fruit farm management will receive emphasis. Nut culture will be treated briefly.

e11-12—Poultry husbandry. Lectures and laboratory. 3 points each half-year. Mr. CLARK

7.40-9.30 P.M., M. (lectures), Room 505 Schermerhorn; 1-3 P.M., S. (laboratory). Fee \$15 each half-year. Credit IV if specially approved before registration.

The course covers the main points in handling poultry for chick, egg and meat production. The important topics taken up in lectures and laboratory periods in practically the order given are: Origin and development of poultry types, breeds, development of poultry raising, poultry breeding, incubation, breeding, scoring, exhibiting, foods and feeding, poultry plant location and construction, sanitation, parasites and diseases, preparation and marketing.

Several lecture periods will be devoted to considering turkeys, ducks, geese, pigeons, etc.

The concluding lectures and laboratory periods have to do with profitable poultry management. The laboratory periods will be occupied with designing and drawing plans of poultry houses and appliances, practice with incubators and brooders, eggs, caponizing, killing, picking and packing, trips of inspection to nearby poultry farms and visits to commission houses and cold storage warehouses.

## Assyrian, p. 62.

## Architecture

The following evening courses in architecture will be offered in the year 913-14. They cover the first year of the School of Architecture and the greater part of the work taken in the second year, and will count toward the certificate and the degree in architecture for those who have passed the entrance examinations. They are open, however, to all qualified students without examination. See special circular on Entrance Examinations.

For schedules of subjects and points see the Announcement of the Faculty of Fine Arts.

The number of points is indicated with the statement of the course.

eW1—Elementary freehand drawing. (See also under Mechanical Drawing.) Six hours drafting per week. First half-year. Mr. Beans 7–10 p.m. W.; 2–5 p.m. S., Room 601 Engineering. Fee \$15 Repeated in second half-year if called for.

This course will consist of practice in drawing from casts in outline, in light and shade, and in the elements of free-hand perspective.

It is intended to give a solid foundation in the principles of freehand drawing from a structural standpoint, and it is the aim to develop a perception of form, proportion and construction as well as facility in representing the same.

The instruction will consist almost entirely of individual criticism and the student will be urged to go as far as his individual ability will allow.

Elements and applications of algebra, geometry and trigonometry. See p. 65 under Structural Mechanics for this and other courses on this subject.

- e1—The elements of architecture. 3 points first half-year. Professor Harriman
- 8-10 P.M., W. and F., one hour lecture and three hours drafting. Room 505 Avery. Credit V. Fee \$15

Mouldings, the orders, intercolumniation and superposition, balustrades, arcades, doors, windows, roofs, spires, vaults, domes.

- e2—The elements of architecture. 3 points second half-year. Professor Harriman
  - 8-10 P.M., W. and F., Room 505 Avery. Credit V. Fee \$15

Exercises in applications of elementary architectural forms as given in course e1; of shades and shadows as given in course e5; both of which are prerequisite.

- e5—Shades and shadows. 4 points first half-year. Professor Sherman
- 7-7.50 P.M., M., W. and F., Room 405 Avery; 7.30-9.10 Tu., Room 504 Avery. Credit V. Fee \$20

Shades and shadows, projections and intersections; 3 hours lectures, 2 hours in drafting room. Equivalent to Architecture 5 of the regular course.

e6—Perspective. 3 points second half-year. Professor Sherman 7-7.50 p.m., M. and W., Room 405 Avery; 7.30-9.10 p.m., Tu., Room 504 Avery. Credit V. Fee \$15

Twelve plates are required.

Equivalent to Architecture 7 of the regular course.

e9-10—Descriptive geometry. 3 points first half-year; 2 points second half-year. Professor Sherman

8-8.50 P.M., M. and W., Room 405 Avery. Credit V. Fee \$15 first half-year; \$10 second half-year

Sixteen to twenty-four plates are required. Equivalent to Architecture 6 of the regular course.

e13-14—Building materials. 2 points each half-year. Mr. Pond 9-9.50 p.m., M. and W., Room 405 Avery. Credit V. Fee \$10 each half-year

Specifications, properties and tests of building materials used in carpentry, slow-burning construction, steel and iron construction, masonry, fire-proofing, reinforced concrete, plumbing and electric light wiring.

e15-16—Structural design. 2 points each half-year. Mr. Pond 8-8.50 p.m., M. and W., Room 407 Avery. Credit V. Fee \$10 each half-year

Graphical analysis and calculations, without the calculus, of roof trusses, girders, piers, buttresses, arches and retaining walls.

- e21-22—Ancient and medieval architecture. 1 point each halfyear, if taken with some other course. Curator Bach
  - 6-6.50 p.m., F., Room 407 Avery. Credit I, V. Fee \$5 each half-year The ancient architecture of Egypt, Assyria, Persia, Greece and Rome; early Christian, Byzantine, Romanesque and Gothic architecture.
- e23-24 Renaissance, modern and Oriental architecture. 1 point each half-year, if taken with some other course. Curator BACH
  - 6-6.50 P.M., M., Room 407 Avery. Credit I, V. Fee \$5 each half-year The architecture of the Renaissance in Italy, France, Germany, Spain and England; European architecture of the nineteenth century; American architecture; Moslem and Indian architecture.
- e31-32—History of ancient ornament. 1 point each half-year, if taken with some other course. Curator Bach
  - 6-6.50 P.M., W., Room 408 Avery. Credit I, V. Fee \$5 each half-year General considerations; primitive and savage ornament; the historic ornament of Egypt, Assyria, Persia, Greece and Rome, including Ægean, Cypriote, Phoenician and Etruscan ornament; the development of the styles, the common motives and patterns of both architectural ornament and the minor arts.

Will not be given for less than ten students.

e71-72—Drawing. 2 points each half-year. Professor Harriman 8-10 p.m., M. and Th., Room 504 Avery. Credit V. Fee \$10 each half-year

Drawing in outline; isometric; from cast and still life.

## Design

The courses in Design are conducted on the basis of a progressive series of problems and sketches. These are assigned in the form of programs issued at stated intervals. The work of the students, delivered at a designated time, is passed upon by a jury of architects, the whole program being in this respect identical with that of the Society of Beaux-Arts Architects. A registration fee of two dollars is required by this Society and may be paid to the Chairman of the Committee on Education, 16 East 33d Street, New York City. More detailed information on this head will be given at the first meeting of the courses.

Prerequisites for all courses. Work in the Elements of Architecture and Shades and Shadows, corresponding respectively to e1, e2, and e5, or their equivalents; such equivalents to be determined by Mr. Prévot, before registration. Students who wish subsequently to transfer their credits to the records of the School of Architecture must also submit Descriptive Geometry, e9-10, or its equivalent.

e61-62—Elementary design. 20 hours. Mr. Prévot and Mr. Ware Room 202 Avery. Credit  $(V^*)$ . Fee \$20 each half-year

Major and minor problems corresponding to the Class B Analytiques of the Society of Beaux-Arts Architects.

e**63-64**—Intermediate design. 20 hours. Mr. Prévot and Mr. Ware Room 202 Avery. Credit (V\*). Fee \$20 each half-year

Major and minor problems corresponding to the Class B Projets of the Society of Beaux-Arts Architects.

e65-66—Advanced design. 20 hours. Mr. Prévot and Mr. Ware Room 202 Avery. Credit (V\*). Fee \$20 each half-year

Major and minor problems corresponding to the Class A Projets of the Society of Beaux-Arts Architects.

Note.—Students may meet Mr. Prévot on September 20 and 27 at 2 p.m. and on September 24 at 8 p. m. in Room 505 Avery.

For other courses in architecture given in Brooklyn, see p. 67 and special circular

Biology, p. 66

## Bookkeeping, p. 23

\*Students desiring credit for this course in the School of Architecture must submit work bearing the attestation of Mr. Prévot and the Committee on Design of that School. Requests for such transference of credit should be made to Mr. Bach, Curator of the School of Architecture, or left in writing for him at the office of the Director of Extension Teaching.

## Botany

e1-2—Nature and development of plants. Lectures and laboratory. 4 points each half-year. Dr. Dodge

7.20-8.35 P.M., Tu. and F., Room 505 Schermerhorn. Laboratory 8.35-9.50 P.M. Credit I, IV. Fee \$20 each half-year

Organs, structure and work of the plant; development of plant life through an examination of the important biologic types.

- e1a-2a—General botany. Lectures and laboratory. 2 points each half-year. Dr. Dodge
- 1.10 p.m., S., Room 505 Schermerhorn. Laboratory, 2.10-4 p.m., Room 502 Schermerhorn. Credit I, IV. Fee \$10 each half-year

This course consists of two parts: 1. The structure and physiology of plants. 2. The evolution of plants. Part 1 will be given in 1913-14.

- e3a-4a—Structure and classification of cultivated plants. Lectures and laboratory. 2 points each half-year. Dr. Dodge
- 10-11 a.m., S., Room 407 Schermerhorn. Laboratory, 11-12 a.m., Room 502 Schermerhorn. Credit I, IV. Fee \$10 each half-year
- e5-6—Students having completed the preceding courses may continue their work by registering for this course, the hours and character of the work to be determined upon consultation with Professor Harper. 2 points each half-year. Credit I. Fee \$10 each half-year
- [e7-8—Farm forestry. Lecture, laboratory and field work. 2 points each half-year. Dr. DARLING
- 1.10-2.10 P.M., S., Room 516 Schermerhorn. Laboratory 2.10-4 P.M., Room 502 Schermerhorn. Credit IC, IV. Fee \$10 each half-year

Management of the wood lot, including planting, protecting, estimating and cutting; also uses and preservation of timber.

This course will be given in alternate years with e9-10. Not given in 1913-14.]

- e9-10—Forest botany. Lecture, laboratory and field work. 2 points each half-year. Dr. Darling
- 1.10-2.10 p.m., S., Room 516 Schermerhorn. Laboratory 2.10-4 p.m., Room 502 Schermerhorn. Credit IC. Credit IV if specially approved before registration. Fee \$10 each half-year

A study of types of trees and shrubs and their distribution and relation in forests. Prerequisite: Botany e1-2.

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Business English, p. 29

Business Organization p. 23

Business and Social Statistics, p. 23

Cataloguing, p. 44

## Chemistry

eA1—General chemistry. Elementary course for students beginning the study of chemistry. 2 lectures, 1 recitation and 2 hours laboratory practice. 4 points first half-year. Dr. Neish and assistant

7.30-9.50 P.M., Tu. and F., Room 301 Havemeyer. Credit I, IV. Fee \$20 first half-year

This course is a duplicate of the day course A1. It covers the requirements of the College Entrance Examination Board in chemistry. It is accepted for admission to the Schools of Mines, Engineering and Chemistry and to the College of Physicians and Surgeons and is equivalent to the prerequisite to the courses in the Schools of Practical Arts. This course is prerequisite to the other courses in chemistry given in Extension Teaching and to the first-year chemistry in the Schools of Mines, Engineering and Chemistry.

Laboratory fee \$7.50. Deposit for breakage \$10.

e6—General inorganic chemistry. 2 hours classroom work and 6 hours laboratory work. 5 points second half-year. Dr. Neish and assistant

7--9.50 p.m., Tu., W., and 7--8.50, F., Room 301 Havemeyer. Credit I, IV, V. Fee \$25 second half-year

This course, which presupposes a knowledge of general chemistry (eA1), continues the study of general chemistry, with particular reference to giving a greater knowledge of descriptive chemistry and a more advanced and systematic discussion of general principles and their applications. It aims thus to prepare the student for the courses in organic chemistry or in qualitative analysis which follow. It is accepted as equivalent to Chemistry 6 or 3 required of all first-year students in the Schools of Mines, Engineering and Chemistry.

Laboratory fee \$12.50 second half-year. Deposit for breakage \$10.

e41-42—Organic chemistry. Introductory lecture course. 2 hours. 2 points each half-year. Dr. FISHER

7.20-9.35 p.m., M. Room 413 Havemeyer. Credit I, V. Fee \$10 each half-year

Instruction is given on the more important classes of organic compounds, as the hydrocarbons, alcohols, ethers, aldehydes, ketones, acids, amines, cyanides, cyanates and simple nitrogen heterocycles. The lectures will be illustrated by experiments and material from the chemical museum. This course is accepted as the equivalent of Chemistry 41-42 and is of special advantage to students of pharmacy and medicine.

Text-book: Perkin and Kipping's Organic Chemistry.

Prerequisite: Chemistry e3-4, or 3C-4C; prerequisite or parallel, e43-44.

e43-44—Organic chemistry. Laboratory course. 4 hours per week. 2 points each half-year. Dr. Fisher

7.20-9.20 P.M., W. and F. Room 405 Havemeyer. Credit I, V. Fee \$10 each half-year

A study of the more important syntheses and reactions of the different classes of organic compounds. Equivalent to Chemistry 43-44b.

Prerequisite or parallel: Chemistry e41-42.

Laboratory fee \$10 each half-year. Deposit for breakage \$10.

e67-68—Qualitative analysis. 2 lectures and 5 hours laboratory work. 4 points each half-year. Mr. LOMBARD

7.20-9.50 P.M., M., W. and F., Room 511 Havemeyer. Credit I, IV, V. Fee \$20 each half-year

A systematic course in the theory and practice of inorganic qualitative analysis based upon the principles of modern chemistry. Accepted as equivalent to 61 or 62 required of all first year students in the Schools of Mines, Engineering and Chemistry, and to 67-68.

Laboratory fee \$12.50 each half-year. Deposit for breakage \$10.

Text-book: Stieglitz' Qualitative Analysis, Pt. I.

Prerequisite: Chemistry e3-4 or 3C-4C.

NOTE.—Students who have previously completed the greater part of this course may, with the consent of the Director, register for the remainder, counting it 1 to 3 points.

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#### COMMERCE

(See also special circular)

### Accounting

e1-2-Elementary bookkeeping. Mr. BALTZ

7.40-9.30 P.M., F., Room 511 Journalism. Fee \$15 each half-year

e3-4-Principles of accounting. 2 points each half-year. Mr. KOOPMAN

7.40-9.30 P.M., Th., Room 511 Journalism. Fee \$10 each half-year

e5-6-Practical accounting. 2 points each half-year. Mr. Boyce 7.40-9.30 P.M., W., Room 511 Journalism. Fee \$10 each half-year

e7-8-Cost accounting. 2 points each half-year. Mr. Nicholson 7.40-9.30 P.M., W., Room 603 Journalism. Fee \$10 each half-year

e9-10-Auditing practice and practical accounting problems. 2 points each half-year. Mr. Montgomery

7.40-9.30 P.M., F., Room 603 Journalism. Fee \$10 each half-year

#### Commerce

e1-2-Principles of economics. 3 points each half-year. Dr. An-DERSON. Credit I. IV

7.30-10 P.M., S., Room 512 Journalism. Fee \$15 each half-year

e3-4—Business organization and administration. 2 points each half-year. Dr. Stevens

7.40-9.30 P.M., W., Room 512 Journalism. Fee \$10 each half-year

e5-6—Commercial geography. 2 points each half-year. Credit IV. Professor McFarlane

7.40-9.30 P.M., Th. Room 512 Journalism. Fee \$10 each half-year

e9-10-Business and social statistics. 2 points each half-year. Credit 1B. Professor CHADDOCK

7.40-9.30 P.M., W., Room 405 Kent. Fee \$10 each half-year

e11-12—Railway and water transportation. 2 points each half-year. Dr. Willis

7.40-9.30 P.M., M., Room 512 Journalism. Fee \$10 each half-year.

e13-14—Railway traffic and rates. 2 points each half-year. Dr. Willis

7.40-9.30 P.M., Tu., Room 512 Journalism. Fee \$10 each half-year

e15—Advertising. 2 points first half-year. Mr. Hubbart 7.40-9.30 p.m., Tu., Room 703 Journalism. Fee \$10

e16—Salesmanship. 2 points second half-year. Mr. Hubbart 7.40-9.30 p.m., Tu., Room 703 Journalism. Fee \$10

#### Commercial Law

- e1—Contracts. 2 points first half-year. Mr. Currier 7.40-9.30 p.m., F., Room 405 Kent. Fee \$10
- e2—Negotiable instruments. 2 points second half-year. Professor Gifford

7.40-9.30 P.M., F., Room 405 Kent. Fee \$10

e3-Agency. 2 points first half-year. Professor GIFFORD

7.40-9.30 P.M., Th., Room 405 Kent. Fee \$10

e<br/>4—Corporation law. 2 points second half-year. Professor Gifford

7.40-9.30 P.M., Th., Room 405 Kent. Fee \$10

## English

Commercial English e1–2—Business English and commercial correspondence.  $\operatorname{Mr.Duncan}$ 

7.40-9.30 P.M., Tu., Room 511 Journalism. Fee \$20 each half-year

 ${f e}$ 11a-12a-Public speaking. 2 points each half-year. Fee \$10 each half-year

Sec. '1—7.40-9.30 p.m., W., Room 612 Journalism. Credit IV. Mr. Dow

Sec. 2—7.30–9.20 p.m., Th., Room 712 Journalism. Credit I, IV. Mr. HALLIDAY

#### Finance

- e1-2—Corporation finance. 2 points each half-year. Dr. Stevens 7.40-9.30 p.m., Tu., Room 603 Journalism. Fee \$10 each half-year
- e3-4—Money and banking. 2 points each half-year. Professor Agger 7.40-9.30 P.M., M., Room 603 Journalism. Credit I, IV. Fee \$10 each half-year
- e5-6—Banking organization and foreign exchange. 2 points each half-year. Professor Agger

7.40-9.30 P.M., Th., Room 603 Journalism. Fee \$10 each half-year

- e7—Personal insurance. 2 points first half-year. Dr. Stevens 7.40–9.30 p.m., Th., Room 512 Journalism. Fee \$10
- e8—Property insurance. 2 points second half-year. Dr. Stevens 7.40–9.30 p.m., Th., Room 512 Journalism. Fee \$10
- e9-10—Investments. 2 points each half-year. Mr. Keys 7.40-9.30 p.m., M., Room 507 Journalism. Fee \$10 each half-year
- e11-12—Public finance. 2 points each half-year. Dr. Haig 7.40-9.30 p.m., M., Room 507 Journalism. Fee \$10 each half-year

## Industrial History

**History** e155—The origins of European society. First half-year. Professor Shotwell

7.30-9.30 P.M., Tu., Room 615 Kent. Credit II, half course, IV. Fee \$10

-History e156—Social and industrial history of modern England. Second half-year. Professor Shotwell

7.30-9.30 P.M., Tu., Room 615 Kent. Credit II, half course, IV. Fee \$10

## Indexing and Library Training

Library e1-2—Indexing, filing and cataloguing as applied in business. 2 points each half-year. Miss Williams

8.20-9.10 p.m., M. and Th., Room 609 Journalism. Fee \$10 each half-year

## Sociology

- e141—Social institutions. Lectures, readings and discussions. Half course first half-year. Mr. Shenton
  - 7.30-9.20 P.M., W., Room 605 Journalism. Credit II, IV. Fee \$10
- e142—Social problems. Lectures, readings and discussions. Half course second half-year. Mr. Shenton
  - 7.30-9.20 P.M., W., Room 605 Journalism. Credit II, IV. Fee \$10
  - e151—Principles of sociology. First half-year. Mr. Shenton 7.30-9.20 p.m., M., Room 703 Journalism. Credit II, IV. Fee \$10
- e152—Historical evolution of society. Second half-year. Mr. Shenton
  - 7.30-9.20 p.m., M., Room 703 Journalism. Credit II, IV. Fee \$10

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## Engineering

Civil Engineering

e1-2—Theory of plane surveying. For first-year students in the Schools of Mines, Engineering and Chemistry. 2 points each half-year. Mr. FINCH

7.30-9.10 P.M., W., Room 301 Engineering. Credit I, V. Fee \$10 each half-year

First half-year—General principles of surveying and surveying instruments. Units and measurements. Errors and limits of precision. Tapes and measurement of distance. The vernier and level bubble. The compass, magnetic declination and variation, local attraction, etc. The wye and dumpy levels, theory of leveling, rods, etc. The engineer's transit, measurement of angles, azimith and traversing.

Second half-year—Surveys and computations: Land surveying, including farm, city and public land surveys, computation of coordinates and areas, parting off land, descriptions, relocation, etc. Topographic surveying, transit and stadia method, theory and reduction of stadia measurements, the plane table and government work. Hydrographic, mine and construction surveys.

Prerequisite: Plane trigonometry; also first half-year prerequisite for second half-year.

Text-book: Tracy's Plane Surveying.

## eX1-X2-Theory of railroad surveying. Mr. FINCH

7.30-9.10 P.M., M., Room 301 Engineering. Fee \$10 each half-year

Railroad location in general. The relation of railroad surveys to the problem of railway location. The object of the Reconnaissance, preliminary and final locations and outline of methods used. The permanent way. Field Work: Simple curves. Compound curves. Reverse curves. Transition curves. Frogs and switches. Turnouts and cross-overs. Yard work. Cross-sectioning. Office work: The profile. Computation of earthwork. The mass curve for the proper distribution of earthwork. Estimates of cost.

Two hours a week partly lecture and partly problem work. Students will be required to work out numerous practical problems in connection with the theoretical work.

Prerequisites: Plane surveying, trignometry, algebra.

Text-book: Searle's Field Engineering.

## e**Y1-Y2**—**Plain** and reinforced concrete construction. Mr. Finch

7.30-9.10 P.M., Th., Room 301 Engineering. Fee \$15 each half-year First half-year—Historical, advantages, use and limitations. Cement, mortar and proportioning concrete. Mixing, depositing, forms and finish. Properties and strength of cement and concrete. Reinforced concrete, theory of rectangular and "T" beams and columns. Systems of reinforcement and specifications.

Second half-year—Theory, design and construction. Retaining walls, dams, bins and tanks. Culverts and arches. Pipes, conduits and sewers. Girders, trestles and bridges. Buildings and concrete blocks. Fences and other structures.

Prerequisites: Mechanics and Drafting or equivalent; also first half-year prerequisite for second half-year.

Reference book: Taylor and Thompson, Concrete Plain and Reinforced.

## Electrical Engineering

## e1—Elements of electrical engineering. Lectures. First half-year Mr. Hehre

7.30-9.10 P.M., M, and Th., Room 302 Engineering. Fee \$20

Designed to give the student a general knowledge of the principles of electricity and magnetism.

Prerequisites: Algebra, elementary chemistry and physics. Students should consult the instructor as to these prerequisites.

## e2—Principles of dynamo-electric machinery. Lectures and laboratory. Second half-year. Mr. Hehre

7.30-9.10, M. and Th., Room 302 Engineering. Fee \$20

Designed to give the student a knowledge of the construction and characteristics of dynamo-electrical machinery with particular reference to direct-current generators and motors.

Prerequisite: Electrical Engineering e1.

NOTE.—A deposit of \$10 to cover possible breakage is required of students taking Electrical Engineering e2.

### English

## eV1-V2-English for foreigners. Mr. Duncan

7-7.50 P.M., M. and Th., Room 609 Journalism. Fee \$15 each half-year This course is designed to give foreigners such a training as will enable them to pursue with advantage the more advanced courses in English. By means of reading and conversation it aims to give students a correct pronunciation and to familiarize them with English idiom. While correct oral expression will be regarded as important, more emphasis will be placed on correct written expression. To this end the more elementary principles of English grammar will be studied, and short compositions on simple subjects will be required regularly.

## eW1-W2-English grammar and composition. Mr. Duncan

6.10-7 P.M., M. and Th., Room 609 Journalism. Fee \$20 each half-year This course is intended for mature students who desire to acquire a thorough knowledge of the elementary principles of English grammar. After a rapid review of the parts of speech and their modifications, a detailed treatment of word elements, phrase elements and clause elements and their relations in sentences will be given. Much time will be devoted to the analysis and synthesis of different types of sentences. Punctuation will be regarded as a system of points to denote grammatical relations, and thus considerable attention will be given this subject. One-page compositions on subjects drawn from life and from the experience of the students will be required regularly.

Students who contemplate taking College Entrance English, either eX1-X2 or eY1-Y2, should have completed this course or its equivalent.

eW4—English grammar and composition. Course eW1 repeated in the second half-year. Mr. Duncan

6.10-7 P.M., Tu. and F., Room 605 Journalism. Fee \$20

[eW5—English grammar and composition. Course eW2 repeated in the first half-year of 1914-1915. Mr. Duncan

6.10-7 P.M., Tu. and F., Room 605 Journalism. Fee \$20]

eX1-X2—College entrance English. Books for reading. Reading of texts, themes, conferences, tests, lectures, special oral reports, discussions. Dr. Gaston

4.30-5.45 P.M., M. and Th., Room 512 Journalism. Fee \$20 each half-year

This course is designed to aid in preparing for English a, as required for admission to College and to the Schools of Mines, Engineering and Chemistry. Bach week certain texts will be read and themes prepared. The successful completion of this course will count toward the removal of entrance conditions in English.

Students already registered in this course, who show obvious inability to carry the work, will be transferred to eW1-W2; those who show themselves already equipped in the essentials of the course will be advised to transfer to eY1-Y2. Only in exceptional cases will students be permitted to take simultaneously both eX1-X2 and eY1-Y2. Students intending to present this course for entrance should previously have taken eW1-W2 or its equivalent.

eX4—College entrance English. Course eX1 repeated in the second half-year. Dr. Gaston

6-7.15 P.M., M. and Th., Room 512 Journalism. Fee \$20

[eX5—College entrance English. Course eX2 repeated in the first half-year of 1914-15. Dr. Gaston

6-7.15 P.M., M. and Th., Room 512 Journalism. Fee \$20]

eY1-Y2—College entrance English. Books for study. Study of texts, themes, tests, lectures, discussions. Fee \$15 each half-year

Sec. 1—4.30-5.50 p.m., W., Room 512 Journalism. Mr. MITCHILL Sec. 2—7-8.20 p.m., W., Room 609 Journalism. Mr. Duncan

This course is designed to aid in preparing for English b, as required for admission to College and to the Schools of Mines, Engineering and Chemistry. The successful completion of this course will count toward the removal of entrance conditions in English.

Students already registered in this course who show obvious inability to carry the work will be transferred to eX1-X2.

Prerequisite: eX1-X2 or its equivalent (the third year of high school course).

eY4—College entrance English. Course eY1 repeated in the second half-year. Mr. Duncan

7-8.20 P.M., F., Room 609 Journalism. Fee \$15

[e**Y5—College entrance English.** Course e**Y2** repeated in the first half-year of 1914-1915. Not given in 1913-1914. Mr. Duncan 7-8.20 p.m., F., Room 609 Journalism. Fee \$15]

## Commercial English—e1-2—Business English and commercial correspondence. Mr. Duncan

7.40-9.30 P.M., Tu., Room 511 Journalism. Fee \$20 each half-year

This course is intended for stenographers, private secretaries, and for those who wish to become proficient in effective business communication. The aim is to teach how to use words in such a way as to make people act. The principles of literary composition will be applied to commercial correspondence. Business situations will be analyzed, letters classified into type forms, and the requisites of each class will be exemplified by many models. The psychology of advertising and the sales letter will be analyzed, and principles derived from this analysis will be applied in actual practice. The course will be not merely theoretical, but practical. Every student will be required to write several letters each week, and no one who has not sufficient time for such written work should take this course.

Special consideration will be given to letters of application, letters of complaint, sales letters, follow-up letters and collection letters.

A prerequisite to this course is a knowledge of the principles of elementary English grammar.

eA1-A2—English composition. Lectures, themes and conferences. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—7-8.15 p.m., M. and Th., Room 705 Journalism. Dr. Wolff Sec. 2—7-8.15 p.m., Tu. and F., Room 705 Journalism. Mr. Haller

This course corresponds to English A in Columbia College. Students are expected to confer regularly with the instructor at times to be appointed within the conference period—8.15-8.45. No other engagement should be made for this half-hour.

eA3-A4—English composition. Lectures, themes and conferences. 1½ points each half-year. Dr. Wolff

9-10.15 A.M., S., Room 611 Journalism. Credit I, IV. Fee \$7.50 each half-year

This course is equivalent to one-half of English A. It is offered for teachers and students who desire to gain a knowledge of the principles of rhetoric and English composition as they are now taught in the colleges.

Two one-page themes or one three-page theme a week will be called for. Students are expected to confer regularly with the instructor at times to be appointed within the conference period—10.15-10.45. No other engagement should be made for this half-hour.

eA8—English composition. Lectures, themes and conferences. 3 points second half-year. Mr. CLARK

8.20-9.35 P.M., M. and Th., Room 705 Journalism. Credit I, IV. Fee \$15

Course eA1 given in the second half-year for students beginning at that time.

eA9—English composition. Lectures, themes and conferences. 3 points first half-year. Mr. CLARK

 $8.20\mbox{-}9.35$  P.M., M. and Th., Room 705 Journalism. Credit I, IV. Fee \$15

Course eA2 given in the first half-year for students who have already had eA1 or eA8 or the equivalent

eB1-B2—English literature and composition. Lectures, themes and conferences. 2 points each half-year. Dr. Wolff

8.45-9.35 P.M., M. and Th., Room 707 Journalism. Credit I, IV. Fee \$10 each half-year

This course corresponds to English B in Columbia College. It consists in part of the careful and appreciative study of portions of the works of Chaucer, Spenser, Milton, Pope and Wordsworth.

e1a-2a—English composition. Advanced course. Lectures, themes, and theme criticism. 1½ points each half-year. Dr. Wolff

11--12.15 a.m., S., Room 703 Journalism. Credit I, IV. Fee \$7.50 each half-year

Open to students who have passed English A with high standing or to special students of maturity. This course presumes a knowledge of formal rhetoric and training in the essentials of composition, correctness and precision. From two to four pages of manuscript (230-500 words) are required each week.

e1b-2b—The short story. English composition. Theory of fiction writing. Miss Williams

10.20-11.35 A.M., S., Room 611 Journalism. Fee \$15 each half-year

In this course story writing is studied from the point of the literary critic and also as far as possible from that of the writer. Details of construction will be investigated and the student called upon to contrive plots, depict characters and incidents and to write at least three stories of over 3,000 words each during the year. No special previous training is required, but those wishing to enter the course must submit during the first week a story or sketch of not more than 5,000 words as evidence of competency.

e1c-2c—The short story. English composition. Theory of fiction writing. Miss Williams

11.45 A.M.-1 P.M., S., Room 611 Journalism. Fee \$20 each half-year

This course is open only to the following students: those who have done promising
work in 1b-2b; those who have not completed 1b-2b but submit at the outset a
story of evident merit; and those graduate students specializing in English composition who wish advanced training in theory and criticism.

e11a-12a—Public speaking. 2 points each half-year. Fee \$10 each half-year

Sec. 1—7.30–9.20 p.m., W., Room 712 Journalism. Mr. Dow. Credit IV Sec. 2—7.30–9.20 p.m., Th. Room 712 Journalism. Mr. Halliday. Credit I, IV

This course will deal with public address. Its aim is to give practical training to men and women of whom speaking is demanded in their profession. The first hour will be given to the delivering of prepared speeches, the second to special training before the class.

e17-18-Modern literature, English and foreign. 2 points each half-year. Mr. Steeves

7.30-8.20 P.M., Tu. and F., Room 605 Journalism. Credit I, IV. Fee \$10 each half-year

This course is a general survey of the principal current literary types, tracing their characteristics from the influences prevalent in the Victorian period and giving attention to foreign artistic sources and parallels. The course requires extended and rapid outside reading of a weekly average of possibly three hundred or four hundred pages. The required reading can generally be found in the branch libraries of the New York Public Library.

e19-20—The history of American literature. 2 points each halfyear. Dr. Van Doren

9-10.40 A.M., S., Room 703 Journalism. Credit I, IV. Fee \$10 each half-year

The course furnishes an account of literary production in America from the beginning to the present day. Special attention is given to literary movements in their relation to the political and social background. Assigned readings in important authors will supplement lectures and recitations.

e21-22—English literature from 1780 to 1830. 2 points each halfyear. Dr. Patterson

8.20--10 p.m., W., Room 507 Journalism. Credit I, IV. Fee \$10 each half-year

This course will deal with English romanticism beginning with Cowper. After tracing the first signs of revolt against eighteenth century thought and ideals, it will treat of the new spirit as it expressed itself in the works of the poets and prose writers of the early part of the nineteenth century. While the course will include the work of men not especially well known, it will aim to embrace in considerable detail the poetry of Wordsworth, Shelley, Keats and Byron. The work will be conducted by means of assigned readings and discussions.

e23-24—English literature from 1830 to 1890. 2 points each halfyear. Professor Tucker

10.40-12.20 A.M., S., Room 705 Journalism. Credit I, IV. Fee \$10 each half-year

The aim of this course is to encourage the reading and appreciation of poetry through a study of the chief poets of the Victorian era—Tennyson, Browning, Arnold, Morris, Rossetti and Swinburne. This is not primarily a lecture course: a large part of the time is taken up by the reading and discussion of representative poems and by individual reports from the students.

e35a-36a—Shakspere. 2 points each half-year. Professor Tassin 4-5.40 p.m., Th., Room 603 Journalism. Credit I, IV. Fee \$10 each half-year

An introduction to the study of Shakspere, the condition and character of his life and work and the technic of his plays studied from the dramatic rather than from the literary point of view.

e41-42—Development of the drama. 2 points each half-year. Dr. HALL

8.20--10 p.m., M., Room 612 Journalism. Credit I, IV. Fee \$10 each half-year

This course will trace the development of English drama from the time of the early miracle plays to the death of Sheridan. It will consider in some detail the moralities, the earliest English tragedies and comedies, the works of Shakspere's

predecessors, Shakspere's place in the drama of the time, his successors, and if time permits, the Restoration drama.

e41a-42a—Contemporary dramatic literature. 2 points each halfyear. Mr. Hamilton

10-11.40 A.M., S., Room 206 Journalism. Fee \$10 each half-year

In this course study will be made of representative works of the leading modern dramatists from Victor Hugo to Sir Arthur Pinero. Special attention will be devoted to the evolution of contemporary stagecraft. The best new plays presented during the current theatre season in New York will also be analyzed from the point of view of the dramatic critic. The course will be especially helpful to students who desire subsequently to write plays or to write dramatic criticism; it will bring the actual theatre of today within the reach of academic study.

[e49a-50a—Sentence analysis. 1 point each half-year, if taken with course e61a-62a. Miss Cook

10-10.50 A.M., S. Credit IV. Fee \$7.50 each half-year

A course in English syntax designed for students and teachers of English grammar. The sentence is the unit of attention, and the relations of its elements are carefully studied. Discussion of the most desirable forms of oral analysis and written topical analysis. Especial attention to sentence study in the schools. Not given in 1913-1914.

Text-book: L. G. Kimball, The English Sentence (Am. Book Co.).]

e51a—English phonetics. 2 points first half-year. Credit I, IV. Professor GERIG

11-12.30 A.M., S., Room 308 Philosophy. Fee \$10 first half-year

This course is intended principally for teachers. It will consist of a study of speech-sounds, phonetic structure of English, styles and improvement of pronunciation, phonetic notation with exercises, methods of correcting defects, teaching of phonetics, application of phonetics in the class-room, etc. The course will close with an exposition of the results and discoveries of experimental phonetics. Books: Sweet's The Sounds of English, Oxford, 1908; Rippman's Elements of Phonetics, English, French and German, London, 1910; The Sounds of Spoken English, etc.

e52a—English phonetics. 2 points. Course e51a repeated in the second half-year. Credit I, IV. Professor GERIG

11-12.30 A.M., S., Room 308 Philosophy. Fee \$10 second half-year

[e61a-62a—Oral composition in elementary schools. 1 point each half-year. Miss  $Coo\kappa$ 

11-11.50 A.M., S. Credit IV. Fee \$7.50 each half-year

This course involves (a) the study and application of the principles of composition and expression to oral exercises; and (b) the organization of material of composition to this end. The aim of the course will be to train the teacher in the kind of work required by the newer methods of composition teaching. Not given in 1913-14.]

c211-212—Principles of phonetics. Half course each half-year. Mr. Pierce

4.10--5 p.m., M. and W., Room 507 Journalism. Credit II, IV. Fee \$10 each half-year

This course is designed to meet the needs of students and teachers of philology and linguistics, child-speech and dialectology, as well as to supply the wants of those who desire to inform themselves about the latest and most effective methods of teaching the reading, writing and speaking of the mother-tongue, pronunciation for singers, etc.

The course consists of lectures and practical exercises. The purpose of the lectures is to impart a clear understanding of the basic facts and principles of general phonetics, the science of speech-sounds. The purpose of the practical exercises is to cultivate, through discussion and the use of texts, charts, phonorganic formulas, etc., a thorough familiarity with the details of phonetic fact, exemplified mainly by normal present-day English, and with the world-romic or international system of sound-notation.

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## Fine Arts

e21—The history of painting. 1 point first half-year. Curator Bach 4.10 p.m., W., Room 407 Avery. Credit I, V, if taken with at least one other course. Fee \$5

This course will follow stylistic developments in painting with due regard for historical sequence and the manifestations of national, school and institutional characteristics. The artist's point of view will be consistently emphasized and the materials and processes of production duly considered. The abstract principles of pictorial composition will be treated at greater length in course e42.

The course may be repeated in the second term if at least fifteen persons apply.

- e32—The history of sculpture. 1 point second half-year. Curator Bach
- 4.10 p.m., W., Room 407 Avery. Credit I, V, if taken with at least one other course. Fee \$5

This course will offer a concise historical treatment of stylistic developments in the field of sculpture, in which national, school and institutional influences, as well as the various types and processes of sculpture are adequately considered.

The abstract principles of sculptural composition are treated in greater detail in e42.

- e42—Theory of fine arts. 1 point second half-year only. Curator Bach
- 4.10 p.m., F., Room 407 Avery. Credit I, V, if taken with at least one other course. Fee \$5

A rapid survey of the fundamental concepts of æsthetics demonstrated in the plastic and pictorial arts, the principles of sculptural and pictorial composition, and an exposition of the various types of painting and sculpture, illustrated from historical examples. The course aims to teach appreciation on the basis of the subjective as well as the objective point of view.

e51-52—Introduction to the history of art: Ancient, Mediæval, Renaissance, Modern, and Oriental. 1½ points each half-year. Mr. SMITH

8-9 P.M., F., Avery Library. Credit IV. Fee \$10 each half-year.

This course will cover the development of the arts of painting and sculpture. and, to a limited extent, of the derived and dependent arts. The point of view will be historical, noting the appearance and growth of national characteristics, and of the artistic types which express these characteristics. The history of art will be shown not so much in the succession of monuments as in the development of style. It is expecially desired to make the course useful to practical people—painters, sculptors and designers. Students who are able to draw will be given opportunity to illustrate their notes with sketches of typical and important works. Attention will be given to methods and processes, carving, modeling, fresco, etc. The large resources of the Avery Library will be available for reference and will furnish abundant illustration.

e51a—The appreciation and history of art—a study of the originals in the Metropolitan Museum of Art. 2 points first half-year. Fee \$10. Dr. Kriehn

Sec. 1—10–12, S., Metropolitan Museum Sec. 2—2-4, F., Metropolitan Museum

This course is planned for all who wish to learn how to judge and enjoy painting, sculpture and the decorative arts. The subjects will be treated in historic sequence, thus outlining the general development of art. The chief emphasis will be placed upon painting, in which the Museum is especially rich, and full advantage will be taken of the J. Pierpont Morgan collection. Special attention will be devoted to the needs of teachers and university students, for whom the Saturday morning section is designed. The course is accepted as a thirty-hour collegiate course by the Board of Education of New York City. Readings are prescribed for those registering for credits. Use will be made of the important Museum Library.

Note.—A course similar to e51a will be given in the second half-year if called for.

e91—Theory and processes of the decorative arts. 1 point first half-year only. Curator Bach

4.10 P.M., F., Room 407 Avery. Credit I, V, if taken with at least one other course. Fee \$5

An analysis of the principles controlling decorative composition and a detailed treatment of the processes involved in the following arts: mosaic, mural painting, architectural sculpture, ceramics, stained glass, plaster, iron- and wood-work.

This course may be repeated in the second term if at least fifteen persons apply.

Forest Botany, p. 21

Framed Structures, p. 65

French, p. 55, 68

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## Geology

The courses in Geology will be given under the direction of Professor Grabau, who will occasionally meet the classes.

e1—General geology. A general introduction to the subject of geology. 3 points first half-year. Mr. Burr

7.30-9.10 P.M., Tu. and F., Room 401 Schermerhorn. Credit I, IV. Fee \$15

This course covers an introduction to the common rocks, their structure, origin and occurrence in nature; weathering of rocks and its products, geological activities of the air, the streams and the sea; characteristics and work of glaciers, volcanoes and earthquakes.

The laboratory work consists of a study and identification of common rocks, drawing of structure sections, interpretation of topographical maps, etc. There will be several field trips on Saturday afternoons.

No prerequisite. Equivalent to Geology 1 in Columbia College. A knowledge of elementary chemistry is desirable.

Text-book: Chamberlin and Salisbury, College Geology.

e2—Historical geology. The origin of the earth and its development—succession of plant and animal life. 3 points second half-year. Mr. Burr

7.30-9.10 P.M., Tu. and F., Room 401 Schermerhorn. Credit I, IV. Fee \$15

This course deals with the origin of continents and ocean basins and their development during successive geologic periods, characteristic sections and their interpretations, study of important types of fossils as indications of geologic age; the glacial period and the antiquity of man; development of surface features or physiography.

The laboratory work consists of the study of maps, sections and fossils, followed by work with physiographic models. There will be several excursions on Saturday afternoons in the spring.

Prerequisite: Geology 1 or Geology e1 or s1.

Text-book: Chamberlin and Salisbury, College Geology; Grabau, Syllabus of Historical Geology.

e25-26—Elementary conchology. An introduction to the scientific study of shells. 2 points each half-year. Miss O'CONNELL

9.30-12 A.M., S., Room 101 Schermerhorn. Credit I, IV. Fee \$10 each half-year

A study of the structure, relationships and geographical distribution of the shells of modern mollusks, with practice in the identification of modern and Tertiary species. This course is intended to give the student some acquaintance with the development of shells and to enable him to identify them with the aid of literature on the subject. All the common shells of the Atlantic coast from Maine to Florida will be studied, and the large series of modern and Tertiary shells from all parts of the world in the collection of the department will be freely used. Excursions for the collection of our local shells will be made.

The first half-year will be devoted to a study of bivalves or Pelecypoda, and the second half-year to Gastropoda and Cephalopoda.

No preparation is required, but an elementary knowledge of Zoology is desirable.

Minimum number of students three.

Text-book: Woodward, Manual of the Mollusca,

e13-14—Elementary field geology. Principles and methods of geological field work. 3 points each half-year. Mr. Burr

1.30-4.30 P.M., S., starting from Room 403 Schermerhorn. On rainy days and during the colder part of the winter laboratory exercises will replace the field work. Credit I, IV. Fee \$15 each half-year

Objects: (1) Methods of field observation; measurements of dip and strike measurements of thickness of formations; plotting geological maps; making cross and columnar sections; methods of making careful and detailed field notes; use of common instruments; proper methods of collecting rock-specimens and fossils; labeling, wrapping and packing in field; making simple base maps by compass and pacing survey; simple plane table work; (2) Study of rock structures and their relation to typography; weathering of rocks and formations of soils; character and distribution of glacial deposits of various kinds; working out structure of simple folded and faulted regions; making an areal geological map and writing a report.

Prerequisite: General geology.

Text-book: Farrell, Geological Field Methods.

e15—Elementary palaeontology. An introduction to the study of fossils. Lectures and laboratory work. 2 points first half-year. Miss RAEDER 1.30-4 P.M., S., Room 101 Schermerhorn. Credit I, IV. Fee \$10

General structure of hard part of organisms and their relation to the soft tissue. Growth and development of hard parts of animals. Classification of animals and plants.

Text-book: Grabau and Shimer, North American Index Fossils.

e16—North American index fossils. Lectures and laboratory work. 2 points second half-year. Miss RAEDER

1.30-4 P.M., S., Room 101 Schermerhorn. Credit I, IV. Fee \$10
Systematic study of the North American fossil invertebrates important for the determination of geological horizons.

Text-book: Grabau and Shimer, North American Index Fossils.

#### German

eA1-A2—Elementary course. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—4.30-5.45 P.M., Tu. and F., Room 605 Journalism. Professor Heuser

Sec. 2—8.35-9.50 p.m., M. and Th., Room 605 Journalism. Dr. Porterfield

This course familiarizes the beginner with the common vocabulary and the fundamental grammatical facts of the language so as to enable him to read easy German at sight. Reading forms part of the work from the beginning, together with grammar study, easy exercises in composition, and a considerable amount of colloquial practice in the phrases of everyday life. Although this course is intended for beginners it may be taken with profit by those who have some previous knowledge of the language but are deficient in grammar.

Prerequisite to eA2: eA1, eA3-4, or sA1 and sA2. For course eA1 no previous knowledge of German is required.

Course eA2 completes the college entrance requirement in Elementary German. eA3-A4—Elementary course. Equivalent to course eA1. 1½ points each half-year. Mr. BACH

10--11.15 a.m., S., Room 603 Journalism. Credit I, IV. Fee \$7.50 each half-year

This course, continuing throughout the year, is equivalent to course eA1. The student may complete the requirement in Elementary German for college entrance or for a degree by taking eA2, eA5-A6, or (if specially proficient in eA3-A4) sA3.

Prerequisite to eA4: eA3 or sA1. For course eA3 no previous knowledge of German is required.

eA5-A6-Elementary course. Equivalent to course eA2. 1½ points each half-year. Mr. Bach

11.30-12.45, S., Room 603 Journalism. Credit I, IV. Fee \$7.50 each half-year

Prerequisite, eA1, eA3-A4 or sA1 and sA2.

This course, continuing throughout the year, is equivalent to course eA2.

eA8—Elementary course. 3 points second half-year. Mr. EYSTER. Credit I, IV. Fee \$15.

4.30-5.45 P.M., Tu. and F., Room 603 Journalism

Equivalent to eA1 of the first half-year (for description see above); followed by eA9 (equivalent to eA2), given the first half-year.

eA9—Elementary course. 3 points first half-year. Mr. EYSTER. Credit I, IV. Fee \$15

4.30-5.45 P.M., Tu. and F., Room 603 Journalism

Follows eA8; equivalent to eA2 of the second half-year (for description see above).

eB1-B2—Intermediate course. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—4.30–5.45 P.M., Tu. and F., Room 609 Journalism. Mr. SCHULZE Sec. 2—7–8.15 P.M., M. and Th., Room 605 Journalism. Mr. Palmblad

This course is intended for students who have satisfied the college entrance requirement in Elementary German or have taken course eA1-A2 or an equivalent. Course eB2 completes the requirement in Intermediate German for college entrance or for a degree.

The work of this course includes the reading (partly at sight) of about five hundred pages of moderately difficult prose and verse by standard modern and classical authors; grammatical instruction, beginning with a rapid review of the elements and embracing the fundamental principles of syntax and word-formation; exercises in composition and free reproduction, oral and written, with some colloquial practice. The texts studied will be selected with reference to variety of style and vocabulary and will include Freytag's Die Journalisten, Heine's Harzreise, and Schiller's Wilhelm Tell.

Prerequisite: eA2, eA5-6, or sA3, or an equivalent.

Students will require at the beginning of this course Baumbach's Der Schwiegersohn, edited by Florer and Lauer (Allyn and Bacon), and Thomas, Practical German Grammar (Holt).

eB3-B4—Shorter intermediate course. 2 points each half-year. Professor Braun (first half-year) and Mr. Bechert (second half-year)

9-10.40 a.m., S., Room 507 Journalism. Credit I, IV. Fee \$10 each half-year

This course is equivalent in hours to two-thirds of eB1-B2 and includes the more important work of the longer course, with a smaller amount of reading (about

350 pages) and of practice in writing and speaking. Students proficient in this course are able to pass the college entrance examination in Intermediate German. If supplemented by course e3-4 or s3-4 it will be accepted in satisfaction of the intermediate requirement for admission or for a degree.

Prerequisite: as for course eB1-B2.

eB6—Intermediate course. 3 points second half-year. Mr. Betz. Credit I. IV. Fee \$15

4.30-5.45 P.M., Tu. and F. Room 507 Journalism

Follows eA9; equivalent to eB1 of the first half-year (for description see above).

e3-4—Composition and oral practice. Intermediate course. 1½ points each half-year. Credit I, IV. Fee \$7.50 each half-year

Sec. 1—11–12.15 A.M., S., Room 609 Journalism. Mr. Bechert Sec. 2—6.10–7.25 p.M., W., Room 605 Journalism. Mr. Betz

This course aims to meet the demand for instruction looking toward a practical command of the German language. It is intended for students who possess an elementary reading knowledge (the equivalent of Course eA2 or eA9 or eA6), but previous practice in oral expression is not regarded as a prerequisite. The course may be taken with advantage by students who are taking, or have taken eB1-B2 or eB3-B4.

From the outset simple German will be employed as far as possible by instructor and student alike. The subjects pursued and the methods employed will depend in large measure upon individual needs. The conversation will be based upon easy German narrative prose, short poems and so far as may be practicable, upon daily life and current events, and will be supplemented with frequent dictation exercises. The composition work will consist of translations into German and of original themes upon subjects discussed in class.

e5-6—Introduction to the classics. Selected works of Goethe, Schiller and Lessing. 3 points each half-year. Professor Hervey

4.30-5.45 P.M., M. and Th., Room 302 Philosophy. Credit I, IV. Fee \$15 each half-year

This course aims to make the student familiar with representative works of the classical period and the outlines of its history, and to increase the student's command of vocabulary and idiom by means of supplementary sight reading and by interpretation of the text without the medium of translation.

The course will include the reading and study of selected dramas of Lessing, Goethe and Schiller, with brief discussion of other works in connection with assigned private reading. As the course affords but little practice in speaking and writing German, it is recommended that course e3-4 or e11-12 be taken in connection with it.

Prerequisite: eB2, eB4, or an equivalent.

Text-books required at the beginning: Lessing's Emilia Galotti, edited by Winkler (Heath); Rolleston's Life of Lessing, published in the "Great Writers" series (Walter Scott, London).

e11-12—Composition and oral practice. Advanced course. 1½ points each half-year. Professor Braun (first half-year) and Professor Heuser (second half-year)

11-12.15 A.M., S., Room 507 Journalism. Credit I, IV. Fee \$7.50 each half-year

Intended to continue the work of course e3-4 or s3-4, but has at the same time a distinctly literary content. It presupposes a good reading knowledge and fair ability to understand the spoken language. This course will be conducted wholly in German. The conversation will be upon topics chosen from the field of literature, daily life and current events. The composition work will consist in the rendering of outlines of the literature read and in the preparation of original themes.

Students will require at the beginning of this course Buchheim, Balladen und Romanzen (Macmillan).

100 101 0 11 1 7

e103-104—Goethe's Faust. First and second parts. Half course each half-year. Professor Thomas

9-10.40 A.M., S., Room 508 Philosophy. Credit II, IV. Fee \$10 each half year

This course, intended for the enjoyment of Faust as poetry, consists in the reading and interpretation, by lecture and discussion, of the First Part in its entirety, the Second Part in selected portions. Prerequisites: Course e5-6 or equivalent, and reading knowledge of German. Attention is given to its genesis and its significance in the study of Goethe's life and works, to its ethical import and artistic character as a whole.

Students will require for this course Goethe, Faust, First and Second Parts, 2 vols., edited by Calvin Thomas (Heath).

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Hebrew, p. 61

## History

eA1—The foundations of modern Europe. Lectures, readings and discussion. 3 points first half-year. Dr. Humphrey

8.20-9.35 P.M., Tu. and F., Room 612 Journalism. Credit I, IV. Fee \$15

After a brief survey of the contributions of the ancient world and of the middle ages to European civilization, the course will deal with important political, economic and intellectual achievements from the fifteenth to the eighteenth centuries. It will treat of the so-called Renaissance, the spirit of reform and of revolt, the expansion of Europe, monarchy by divine right and the various aspects of the "old régime."

Text-book: Robinson and Beard, Development of Modern Europe, 2 vols.

This course is equivalent to History A1 as given in Columbia and Barnard Colleges.

eA2—Modern and contemporary history. Lectures, readings and discussion. 3 points second half-year. Dr. Humphrey

8.20-9.35 P.M., Tu. and F., Room 612 Journalism. Credit I, IV. Fee \$15

This course is designed as an introduction to current national and international problems. The principal topics will be the intellectual achievements of the eighteenth century, the French Revolution with reference to political and economic changes, the work of Napoleon in reforming France and in reshaping the map of Europe, the Industrial Revolution, the development of Italian and German unity, the third French Republic, the rise of Russia, modern social problems and imperialism in Africa and the Orient.

Text-book: Robinson and Beard, Development of Modern Europe, 2 vols.

This course is equivalent to History A2 as given in Columbia and Barnard Colleges.

e11—English history to 1689. Lectures, readings and discussion. 2 points first half-year. Professor Schuyler

9.10-10.50 A.M., S., Room 707 Journalism. Credit I, IV. Fee \$10

The central theme is the development of the constitution to the close of the seventeenth century. Students intending to elect this course are advised to familiarize themselves with the elementary political history as given in Cheyney, Short History of England, or in any other good text-book of English history. The course aims to introduce the student to the standard works on the English constitution, readings from which will be used as the basis for discussion in class.

e12—The British Empire, 1689-1911. Lectures, readings and discussion. 2 points second half-year. Professor Schuyler

9.10-10.50 A.M., S., Room 707 Journalism. Credit I, IV. Fee \$10

The central theme is the expansion of England in the eighteenth and nineteenth centuries, and to this the domestic history of Great Britain will be subordinated. A knowledge of elementary political history is presupposed as in e11, and the same method of instruction will be followed.

e13-14—American history. 2 points each half-year. Mr. KENDRICK 11-12.40 A.M., S., Room 707 Journalism. Credit I, IV. Fee \$10 each half-year

A general survey of American history from the age of the discoveries to the present. Among the more important topics treated are: the European background of American history; European institutions in America; the English colonies and their revolt; the attempt at union under the articles of confederation; the formation of the Constitution and the Federalist system; Jeffersonian democracy; European complications and the war of 1812; growth of nationalism; the slavery question and abolition; sectionalism; westward expansion and the war with Mexico; slavery in the territories; the Republican Party; the election of 1860 and secession; the civil war and reconstruction; railroads and the opening of the west; civil service reform; the currency and the tariff; the war with Spain and imperialism; recent problems.

Text-book: Elson, History of the United States.

e104—The political and social evolution of modern Turkey and Egypt. Lecture-study course. Half course second half-year. Professor GOTTHEIL

Lecture, 4.10-5 p.m., conference, 5-5.50 p.m., Tu. 512 Journalism. Credit for those taking both hours, II, IV. Fee \$10

This course will cover the history of the Ottoman Empire from the beginning of the nineteenth century to the present day, the reforms introduced since 1826, the constitutions of 1876 and 1908, the war in Tripoli, 1911-12, the Balkan war, 1912-13, the history of Egypt since Mohammed Ali and the results of the English occupation.

e104a—Course e104 supplemented by assigned readings and reports. Full course. Credit II, IV. Fee \$20

e125-126—The Slavonic movement with especial reference to the Balkan States. Lecture-study course. Half course each half-year. Professor Prince

4-4.50 P.M., lecture; 4.50-5.40 P.M., conference, W., Room 603 Journalism. Credit for those taking both hours, II, IV. Fee \$10 each half-year

This course deals with the historical, political and cultural evolution of the Slavic nations, beginning with the history of the various Slavic tribal and linguistic nuclei in the pre-Christian period and reviewing their development down to modern times, with illustrations of their daily life, customs, literature and folk-songs. Especial attention will be paid to the rise and evolution of the Slavic Balkan States, Servia, Bulgaria and Montenegro, setting forth the distinctive southern Slavic development which these powers represent. In the second half-year a special discussion will be presented of the development of the non-Slav Magyar civilization. The course will conclude with a lecture on the future of the Slav.

e149-150—The French Revolution and the Napoleonic era. Lecture-study course. Half course each half-year. Professor Muzzey

4.20-5.10 P.M., lecture; 5.10-6 P.M., conference, W., Room 605 Journalism. Credit for those taking both hours, II, IV. Fee \$10 each half-year

The object of this course will be to study the French Revolution in its broad social, economic and religious aspects as well as in its dramatic political character. Particular stress will be laid on the conditions of the eighteenth century France which led to the Revolution, and the features of the Revolution which permanently remedied those conditions. The constructive work, both of the men of 1789 and of Napoleon, will be emphasized more than the episodes of the Revolution.

e153-154—Political and social history of Western Europe since 1848. Lecture-study course. Half course each half-year. Professor HAYES

11-11.50 a.m., lecture; 11.50-12.40 a.m., conference; S., Room 709 Journalism. For those taking both hours, Credit II, IV. Fee \$10 each half-year

Opens with an account of the chief political and social problems which confronted the peoples of Western Europe after the downfall of Napoleon. Treats the revolutionary movements of 1848-1849, the gradual growth of democracy, and the political careers of Louis Napoleon, Bismark, Disraeli and Gladstone. Deals with the present government of Germany, France and Great Britain and with such special topics as nationalism, imperialism and militarism. The unifying theme in the course is the increasing adaptation of modern political institutions to social betterment.

e155—Industrial history. The origins of European society. Lecture-study course. Half course first half-year. Professor Shotwell

7.30-8.20 p.m., lecture; 8.20-9.30 p.m., conference, Tu., Room 615 Kent. Credit for those taking both hours, II, IV. Fee \$10

This course deals with the evolution of European society, with especial emphasis upon the history of work and of the common things of daily life. It begins with a survey of pre-historic man, the stone, bronze and early iron ages, the rise of agriculture, the ancient city states, commerce and slavery. It passes in review early German village life, the rise of feudalism, the management of manorial estates, the

rise of European cities, the emergence of capital and the rôle of the Jewish bankers of the Middle Ages, the origins of the national state and the beginnings of world commerce.

e156—Industrial history. Social and industrial history of modern England. Lecture-study course. Half course second half-year. Professor Shotwell

7.30-8.20 P.M., lecture; 8.20-9.30 P.M., conference; Tu., Room 615 Kent. Credit for those taking both hours, II, IV. Fee \$10

This course begins with a short survey of the commercial Revolution which changed the centre of European society from the Mediterranean to the North, the sea route and its influence upon Portugal, Holland, Spain, England and France. It traces the great change in prices due to the influx of gold and silver from America, and treats of the bearing of this upon such movements as the Protestant Reformation. The Industrial Revolution is then taken up in detail, the great inventions are described and the rise of the factory system. The course then considers the advent of the industrial proletariat and includes a survey of popular movements toward reform, Chartism, social legislation, Trade Unions and the historical setting of Socialism.

Note—Courses e155 and e156 may be counted as full courses when supplemented by extra work and upon the payment of an extra fee of \$10 for each.

e131-132—History of the Far Eastern development. Half course each half-year. Lectures, readings and discussions. Dr. IYENAGA

4-4.50 P.M., lecture; 4.50-5.40 P.M., conference; M., Room 605 Journalism. Credit II, IV. Fee \$10 each half-year

After a brief survey of ancient civilization of China and Japan and their contact with the West, this course deals with the important developments in the Far East since the China-Japan war, and the present status of its principal factors, China, Japan, and Russia in East Asia. Among the more important topics treated are: The Manchu régime, mandarins, literati, characteristics of the Chinese people, trade and administration, revolution, republican régime, social and economic progress; feudalism in Japan, restoration of 1868, constitutional development, commercial and industrial activities, foreign relations, annexation of Korea, Japan's position in South Manchuria; expansion of Russia in East Siberia, Manchurian venture, causes and results of the Russo-Japanese war, present position of Russia in the Far East; other factors—Great Britain, Germany, France and the United States.

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#### Latin

eA3—Collegiate Latin. Horace, Odes and Satires; Catullus. 3 points first half-year. Dr. Guernsey

4.30-5.45 P. M., M. and Th., Room 609 Journalism. Credit I, IV. Fee \$15. The same as A2 in Columbia College

eA4—Collegiate Latin. Livy (Books xxi-xxii); Terence, Phormio. 3 points second half-year. Dr. Guernsey

4.30-5.45 P. M., M. and Th., Room 609 Journalism. Credit I, IV. Fce \$15. The same as A1 in Columbia College

eX1—Elementary Latin. First half-year. Miss WYE

7-8.30 P. M., Tu. and F., Room 611 Journalism. Credit IV. Fee \$22.50

The aim of this and the succeeding courses of the three-year cycle is to teach students to read, write and speak the language readily and accurately. To this end the work will be conducted in strict accordance with the principles of the Direct Method. There will be constant drill in the use of forms in oral and written work and systematic study of syntax and vocabulary, but translation from one language to the other will be deferred until the student has a sound knowledge of the elements of Latin.

No previous knowledge of Latin is required for this course.

Text-book: Paine and Mainwaring, Primus Annus (Clarendon Press).

eX2—Caesar, Nepos and prose composition. Second half-year. Miss Wye

7-8.30 P.M., Tu. and F., Room 611 Journalism. Credit IV. Fee \$22.50

The amount and scope of the reading in this course and in the supplementary courses eY1-Y2 will follow closely the recent recommendations of the Cleveland Commission on Entrance Requirements in Latin. Great stress will be laid upon free composition and oral work. There will be occasional exercises in translation. Prerequisite: eX1 or its equivalent.

Text-books: Teubner text editions of Caesar's Gallic War and the Lives of Nepos; Atlas of Ancient and Classical Geography, Smith-Blakeney Classical Dictionary (Everyman's Library).

eY1-Ovid and Vergil. First half-year. Miss WYE

Sec. 1-4.30-6 P. M., M. and Th. Room 611 Journalism

Sec. 2-7-8.30 p. m., M. and Th., Room 611 Journalism. Credit IV. Fee \$22.50

The aim of this course is to introduce the student to the study of Latin poetry. Attention is therefore centered upon the qualities which distinguish prose from verse—range of ideas, metrical form and poetic diction. Exercises in English translation will be more frequent than in the preceding course. Occasional summaries in Latin will be required.

Prerequisite: eX1-X2.

Text-books: Gleason, A Term of Ovid; Harper and Miller, Vergil's Aeneid (American Book Company).

eY2—Cicero and Sallust. Second half-year. Miss WYE

7-8.30 P.M., M. and Th., Room 611 Journalism. Credit IV if taken in conjunction with e**Y4**. Fee \$22.50

In this course the orations for the Manilian Law and for Archias will be read together with the account of the Catilinarian Conspiracy as it appears in Sallust's Catiline and in the Catilinarian orations.

Prerequisite: eX1-X2.

Text-books: Text editions of Sallust's Catiline and the six orations of Cicero specified; Strachan-Davidson, Cicero (Putnam).

eY3-Latin prose composition. First half-year. Miss WyE

4.10-5 P.M., Tu. and F., Room 611 Journalism. Credit IV if preceded by eY2. Fee \$15

This course is designed to give a thorough review of the material which is ordinarily included in the high school course in Prose Composition.

Prerequisite: eX1-X2.

Text-books: Baker-Inglis, Latin Composition (Macmillan); Gildersleeve, Latin Grammar (Heath).

eY4-Course eY3 repeated. Second half-year.

8.20-9.10 P.M., M. and Th., Room 611 Journalism

eY5-Y6—Readings in Latin literature. 2 points each half-year. Miss WyE

5.10-6 P.M., Tu. and F., Room 611 Journalism. Credit IV. Fee \$15 each half-year

This course will consist of readings from Latin authors in chronological order, accompanied by parallel reading in the various histories of Latin literature. Translation into English will be incidental only. The course is designed to meet the needs of students who, after completing the cycle of eX1-X2, eY1-Y2, are desirous of a course that gives a general view of the literature. It furnishes opportunity also for students who have had no experience in the Direct Method to see it applied to an advanced reading course.

eY8—Ovid and Vergil. Course eY1 repeated in the second half-year, if called for by eight students.

# Law, commercial, p. 24

# Library Training

e1-2—Indexing, filing and cataloguing as applied in business. 2 points each half-year. Miss WILLIAMS

8.20-9.10 P.M., M. and Th., Room 609 Journalism. Fee \$10 each half-year

Lectures and practice. A course in indexing and filing correspondence, clippings pamphlets, etc. The application of library methods, card and classification systems, especially the Dewey Decimal system, to records in business offices and special libraries, commercial houses, banks, corporations and newspaper offices.

#### Mathematics

eX1—Algebra, elementary and intermediate course (complete). First half-year. Mr. B. E. MITCHELL

6-6.50 P.M., M., Tu., Th., F., Room 603 Journalism. Fee \$25

This course covers elementary algebra to quadratics and beyond. It includes the fundamental operations, factoring, fractions, ratio and proportion, quadratics, binomial theorem (simple forms), progressions, and graphical methods.

Text-book: Wentworth's New School Algebra.

eX2—Algebra Course eX1 repeated. Second half-year. Mr. McMackin

7-7.50 P.M., M., Tu., Th., F., Room 707 Journalism. Fee \$25

This course covers elementary algebra to quadratics and beyond. It includes the fundamental operations, factoring, fractions, ratio and proportion, quadratic binomial theorem (simple forms), progressions and graphical methods.

Text-book: Wentworth's New School Algebra.

# e**Y1—Plane geometry** (complete). First half-year. Mr. McMackin 7.20-8.10 p.m., M., Tu., Th., F., Room 707 Journalism. Fee \$25

The first five books of Wentworth's Geometry, including rectilinear figures, the circle, proportion, areas of polygons, regular polygons and circles.

Text-book: Wentworth's Geometry (Wentworth and Smith's revision).

eY2—Plane geometry. Course eY1 repeated. Second half-year. Mr. MITCHELL

6-6.50 P.M., M., Tu., Th., F., Room 707 Journalism. Fee \$25

The first five books of Wentworth's Geometry, including rectilinear figures, the circle, proportion, areas of polygons, regular polygons and circles.

Text-book: Wentworth's Geometry (Wentworth's and Smith's revision).

# eZ1—Plane geometry and trigonometry. First half-year. Mr. Gordon

3-4 P.M., M., Tu., W., Th., F., Room 603 Journalism. Fee \$25

This course will be preceded by a general review of plane geometry.

The elementary principles of logarithms and the use of tables of logarithms are presented. The course includes the definitions and relations of the trigonometric functions, the deduction of important analytical formulæ and application of the theory to the solution of plane triangles, trigonometric equations, etc.

Elementary algebra through the quadratic equation is presupposed.

# eA1—Trigonometry and algebra. 3 points first half-year. Mr. Nowlan

6-7.15 P.M., Tu. and F., Room 703 Journalism. Credit I, IV. Fee \$15

The subject-matter of this course includes quadratic equations, variations, trigonometric functions, circular measure, relations between the functions, functions of several angles, inverse functions, trigonometric equations, logarithms, solution of triangles, complex numbers, and the theory of algebraic equations so far as is necessary for the development and use of Horner's method for the solution of numerical equations.

Elementary algebra through the quadratic equation is presupposed.

Equivalent to Mathematics A1 or A4 in the Announcement of Columbia College.

# eA2—Solid geometry. 3 points second half-year. Mr. Gordon 7-8.15 p.m., M., and Th., Room 713 Journalism. Credit I, IV. Fee \$15

In addition to the usual theorems on lines, planes and solids, the geometry of the sphere, and the development of space intuition, this course lays special stress upon the purely logical side of the subject and the nature of mathematical proof.

Plane geometry is presupposed.

The above course is equivalent to Mathematics A2 in the Announcement of Columbia College.

eA4—Trigonometry and algebra. Course eA1 repeated. 3 points second half-year. Mr. Nowlan

6.10-7.25 p.m., Tu., and F., Room 703 Journalism. Credit I, IV. Fee \$15.

(For description of this course see eAl above.)

## e1-Algebra. 2 points first half-year. Mr. Nowlan

7.20-8.35 P.M., Tu. and F., Room 713 Journalism. Credit I, IV, V. Fee \$10

This course is designed for students who desire to continue with such more advanced topics as permutations and combinations, determinants with applications to the solutions of linear equations, complex numbers, theory of equations with reference to the solution of numerical equations of higher degree, undetermined coefficients involving the use of finite series, and partial fractions.

Acquaintance with the elements, including the quadratic equation, is presupposed.

Equivalent to Mathematics 5 or 6 in the Announcement of Columbia College, and to Mathematics 1 or 2 in the Announcement of the Schools of Mines, Engineering and Chemistry.

e3—Analytical geometry. 3 points first half-year. Mr. B. E. MITCHELL 8.20-9.35 P.M., M. and Th., Room 709 Journalism. Credit I, IV, V. Fee \$15

Introduction to algebraic geometry, dealing with such topics as coördinate systems, transformations, loci and their equations, the straight line, circle, parabola, ellipse, hyperbola, the geometric interpretation of the general equation of second degree, and the elements of three-dimensional geometry.

eA1 and eA2 or their equivalents are presupposed.

Equivalent to Mathematics 3 or 4 in the Announcement of Columbia College, and of the Schools of Mines, Engineering and Chemistry.

e4—Analytical geometry. Course e3 repeated. 3 points second half-year. Mr. B. E. MITCHELL

8.20-9.35 P.M., M. and Th., Room 709 Journalism. Credit I, IV, V. Fee \$15

(For description of course see e3 above.)

e15-16—Calculus. 3 points each half-year. Mr. B. E. MITCHELL 7-8.15 P.M., Tu. and F., Room 709 Journalism. Credit I, IV, V. Fee \$15 each half-year

The notions and operations of function, differentiation, and integration are presented with applications to geometry, physics and mechanics.

e3 or its equivalent is presupposed.

Equivalent to Mathematics 15-16 in the Announcement of Columbia College.

# e75-76—Calculus. 4 points each half-year. Mr. PFEIFFER

6-7.40 p.m., M. and Th., Room 709 Journalism. Credit I, IV, V. Fee \$20 each half-year

This course, designed for students intending to qualify for the profession of engineering, is equivalent to Mathematics 75-76 in the Announcement of Columbia College.

## Mechanical Drawing

eW1—Elementary freehand drawing. Six hours drafting per week. First half-year. Mr. Beans

7-10 P.M., W., 2-5 P.M., S., Room 601 Engineering. Fee \$15 Repeated in second half-year if called for. See p. 18

e1-2—Mechanical drafting.\* 1 hour lecture and 5 hours drafting-room work per week. 2½ points each half-year. Professor Harrington 7.20-10 p.m., Tu. and F., Room 607 Engineering. Credit IC, V. Fee \$12.50 each half-year

This course presupposes a fair ability in freehand drawing, and is the equivalent of the courses given to students of the first year in the Schools of Mines, Engineering and Chemistry. It should, if possible, be taken in conjunction with e3-4.

The topics covered will be: the use of instruments; geometrical drafting; lettering; orthographic projection; topographical drafting; elementary working drawings.

e3-4—Descriptive geometry. 2 hours lectures. 2 points each half-year. Professor Harrington

6.30-7.20 P.M., Tu. and F., Room 306 Engineering. Credit IC, V. Fee \$10 each half-year

This course will cover elementary problems relating to the point, right line, and plane; generation and classification of lines and surfaces; tangent planes to surfaces of single and double curvature; intersection of surfaces by planes; development of single curved surfaces; intersection of single curved surfaces. If possible, this course should be taken in conjunction with e1-2.

e5—Graphics.\* 1 hour lecture and 5 hours drafting-room work per week. 3 points first half-year. Professor Harrington

7.20-10 P.M., Tu. and F., Room 607 Engineering. Credit V. Fee \$15

This course treats of the elements of shades and shadows and perspective. The solution of 35 problems in the shades and shadows of lines, planes and groups of solids, including the niche and torus, gives a fair working knowledge of this subject, while a sufficient number of plates are given in perspective to illustrate in detail all of the principles involved.

Prerequisites: Elements of mechanical drafting and descriptive geometry.

e8—Specialized engineering drafting.\* (a) Structural drafting. (b) Machine drafting. 1 hour lecture and 5 hours drafting-room work per week. 3 points second half-year. Professor Harrington

7.20-10 P.M., Tu. and F., Room 607 Engineering. Credit V. Fee \$15

This course includes methods used in framing and detailing in structural work; mine timbering; detailed and assembled drawings of ore-cars and skips; working drawings of machine details; tracings, etc., according to the course selected by the student.

Prerequisites: Elements of mechanical drafting.

<sup>\*</sup>Students will be required to furnish their own drafting instruments and materials.

#### Mechanics

e1-Statics. 2 points first half-year. Mr. WHITTEMORE

6.-7.20 P.M., Tu. and F., Room 510 Fayerweather. Credit I, IV. Fee \$10

Coplanar statics is treated by both algebraic and graphical methods.

Text-book: Maurer's Technical Mechanics, third edition.

Prerequisites: Entrance physics and entrance mathematics as required for the Schools of Mines, Engineering and Chemistry.

## Mechanics, Structural, p. 65

## Money and Banking, p 24

#### Music

e33-34-University chorus. Professor Walter Henry Hall

8.30-10 p.M., W., Earl Hall. Fee for University students expecting credit \$5, otherwise no charge; for all others \$2 for the year. One point credit in Columbia College for the year if taken in conjunction with another course in music.

For the practice and performance of various forms of choral art. It is expected that two large concerts will be given during the year, when the University Chorus will join with those of Brooklyn (Brooklyn Oratorio Society) and Yonkers, forming a large festival chorus. 'Students will be allowed to become members of this chorus only after application to Professor Hall, and after a voice trial.

e53-54—Introductory harmony. 2 points each half-year. Mr. Kraft

11-12.40 A.M., S., Room 608 Mines. Credit IA, IV. Fee \$10 each half-year

The aim of this course is, first, to lead the student to observe the structure of hymn-tunes, chorals and simple compositions, with reference to the melodic movement of parts and to the character and distribution of chords. Second, to give practice in melodic invention and chord combinations expressed in simple constructive work. This work forms the basis for the study of theoretic harmony.

# Negotiable Instruments, p. 24

## **Optics**

A course in practical optics, outlined below, is given by Extension Teaching. A special circular describing this course and giving full information concerning entrance requirements may be obtained from the Secretary of the University.

#### FIRST YEAR

(First half-year)

Mathematics eA1—Geometry and plane trigonometry. Mr. Gordon

3-4 P.M., M., Tu., W., Th., F., first half-year. Room 605 Journalism. Fee \$25

Physics A1—General elementary physics. Professor Davis and Mr. Farwell

Sec. 1—10 a.m., Tu., Th. and S., Room 301 Fayerweather and 2 hours laboratory work. Fee \$20

Sec. 2—7.30-10 p.m., M. and Th., Mr. Farwell, Room 304 Fayerweather. Fee \$20

Only the evening section is open to women. (See "Physics," Columbia College Announcement.)

Optometry 1—Theoretical optics. Dr. STIFLER 5-6 P.M., M., W. and F., Room 609 Fayerweather. Fee \$15

Optometry 3—General anatomy with special reference to the anatomy and physiology of the eye.  ${\rm Mr.\ Woll}$ 

4-5 P.M., W. 4-6 P.M., Th., Room 516 Schermerhorn. Fee \$15

(Second half-year)

Physics A2—General elementary physics. Professor Davis and Mr. Farwell

Sec. 1—10 A.M., Tu., Th. and S., Room 301 Fayerweather. Fee \$20 Sec. 2—7.30–10 P.M., M. and Th., Mr. Farwell. Room 304 Fayerweather. Fee \$20

Only the evening section open to women. (See "Physics," Columbia College Announcement.)

Optometry 2—Theoretical optics. Dr. Stifler

5-6 P.M., M., W. and F., (laboratory 9-11 A.M., S.) Room 609 Fayer-weather. Fee \$20

Optometry 4—General anatomy with special reference to the anatomy and physiology of the eye. (Continuation of 3.) Mr. Woll 7-10 p.m., F., Room 206 Fayerweather. Fee \$15

Optometry 6—Practical optics. Mr. Woll 7-10 P.M., W., Room 206 Fayerweather. Fee \$15

**Optometry 8—Theoretical optometry.** Mr. Cross, and as a special lecturer, Mr. Prentice

8.35-9.50 A.M., M. and F., Room 206 Fayerweather. Fee \$15

#### SECOND YEAR

(First half-year)

Optometry 9—Theoretical optics. Dr. Stifler

2-3 P.M., M., W. and F., (laboratory 9-11 A.M., S.) Room 301 Fayer-weather. Fee \$20

Optometry 11—Physiological optics. Professor Hallock 3-4 P.M., M., W. and F., Room 301 Fayerweather. Fee \$15

Optometry 13—Practical optics. Mr. Woll

7-10 P.M., W. (other hours by special arrangement); Room 204 Fayer-weather. Fee \$15

Optometry 15—Theoretical optometry. (Continuation of 8.) Mr. Cross

8.35-9.50 A.M., Tu. and Th., Room 204 Fayerweather. Fee \$15

Optometry 17—Pathological conditions of the eye, general hygiene and hygiene of the eye. Dr. Welzmiller

10-12 A.M., Th., Room 204 Fayerweather. Fee \$10

Optometry 19—Practical optometry. Mr. Cross 8.35–9.50 a.m., M. and F., Room 204 Fayerweather. Fee \$15

(Second half-year)

Optometry 10—Theoretical optics. (Continuation of 9.) Dr. STIFLER

11-12 A.M., M., W., and F., 2-3 P.M. Th. Room 301 Fayerweather. Fee \$20

Optometry 12—Physiological optics. Professor Hallock 4-5 p.m., W., Room 609 Fayerweather. Fee \$5

Optometry 14—Practical optics. Mr. Woll

4--7 P.M. (other hours by special arrangement). Room 204 Fayerweather. Fee \$15

Optometry 16—Theoretical optometry. (Continuation of 15.) Mr. Cross

8.35-9.50 A.M., Tu. and Th., Room 206 Fayerweather. Fee \$15

Optometry 18—Pathological conditions of the eye. (Continuation of 17.) Dr. Welzmiller

10-12 A.M., Th., Room 206 Fayerweather. Fee \$10

Optometry 20—Practical optometry. (Continuation of 19.) Mr. Cross

8.35-9.50 A.M., M. and F., Room 206 Fayerweather. Fee \$15

# Palaeontology, p. 36

# Philosophy

cA1—Principles of science: methods, deductive and inductive logic. Lectures, recitations and individual consultations with the instructor. 3 points first half-year. Dr. Brown

7-8.15 P.M., Tu. and F., Room 307 Philosophy. Credit I, IV. Fee \$15

This course aims at drilling the students in the forms of accurate thinking, and at developing skill in 'detecting errors in reasoning. The principles of inductive and deductive logic will be taught and applied, both critically and constructively, to a large number of arguments.

Text-book: Dewey's How We Think and Robinson's The Applications of Logic.

This course is the same as Philosophy A1 in Columbia College.

eA2—Principles of science, concepts and problems of philosophy. Lectures, recitations and individual consultations with the instructor. 3 points second half-year. Dr. Brown

7-8.15 P.M., Tu. and F., Room 307 Philosophy. Credit I, IV. Fee \$15

This course is intended to acquaint the student with the fundamental concepts upon which philosophy is based, and to show him how concepts are related and organized into the systematic points of view that characterize the great movement of current philosophical thought.

Text-book: Jerusalem's Introduction to Philosophy.

This course is the same as Philosophy A2 in Columbia College.

e61-62—History of philosophy. Lectures, discussions and essays. 2 points each half-year. Dr. Cooley

4.10-5.50 P. M., W., Room 611 Journalism. Credit I, IV. Fee \$10 each half-year.

In the first half-year the genesis of the fundamental problems of thought, ethics and religion and the treatment they received from ancient and mediaeval thinkers will be traced. The second half-year will be devoted to the consideration of these problems from the point of view of the modern world.

Text-books: Weber, History of Philosophy; Windelband, Ancient Philosophy.

e79-80—Contemporary philosophy. 2 points each half-year. Professor Montague

7.40-9.30 P.M., W., Room 302 Philosophy. Credit I, IV. Fee \$10 each half-year

This course aims to acquaint the student with the leading tendencies of contemporary thought.

• In the year 1913-14 the following authors and subjects will be studied: Haeckel and evolutionary materialism; Eucken and evolutionary idealism; James and evolutionary pragmatism; Bergson and evolutionary vitalism.

Phonetics, (p. 32)

# Physical Education

(For men students)

# eX1-X2-Gymnastics. Dr. Elliott

8.30-9.20 p.m., M., Th., S. Gymnasium fee \$3.50 each half-year. Fee for instruction \$10 each half-year

This course comprises free exercises with and without hand apparatus and chest-weight exercises; simple work on gymnastic apparatus, such as horizontal ladder, horizontal bar, ropes, buck, horse, etc., gymnasium games; swimming.

### eY1-Y2-Swimming. Mr. KENNEDY

Section 1.-M., 8.30-9 or 9-9.30 P.M.

Section 2.—Th., 8.30-9 or 9-9.30 P.M.

Section 3.—S., 8.30-9 or 9-9.30 P.M.

Gymnasium fee \$3.50 each half-year. Fee for instruction \$10 each half-year

Students may receive instruction on either Monday, Thursday or Saturday and will have the privilege of using the swimming pool on the remaining evenings.

### e1-2-Hygiene and sanitation. Professor MEYLAN

8-9.15 P.M., Tu. and Th., Room 302 Philosophy. Fee \$15 each half-year

First half-year—Health and disease in terms of general biology. Preventive medicine; disease germ carriers, flies, mosquitoes, anti-toxins, etc. Sanitation and public hygiene; cleanliness, water supplies, food inspection, garbage and sewage removal, etc. Industrial diseases and accidents. Constructive hygiene. National, state and municipal health agencies.

Second half-year—Personal hygiene; diet and beverages; excretion; lungs and ventilation; skin, clothing and bathing; constipation; physical education; exercise, athletics and games; hygiene of the blood and circulation; hygiene of the nervous system; rest; sleep recreation; mental hygiene; sex hygiene; hygiene of the eyes, ears, nose, throat, teeth and hair; efficiency and vital resistance; colds and minor ailments; first aid to the injured.

### **Physics**

eA1-A2—Elementary course in general physics. 3 hours lectures and recitations, with 2 hours laboratory work. 4 points each half-year. Mr. FARWELL and Mr. COLEMAN

7.30-10 P.M., M. and Th., Room 304 Fayerweather. Credit I, IV. Fee \$20 each half-year

An introductory course in physics for students who wish to become acquainted with the results, methods and spirit of the science, whether they intend to pursue its study further, or wish an elementary knowledge of physics only as a matter of general interest.

e37—Sound and music. The physical basis of music. 3 points first half-year. Professor MALTBY

4.45-6 P.M., M. and W., Room 615 Fayerweather. Credit I, IV. Fee \$15 first half-year

This course is designed to give, with as little mathematics as possible, the physical basis of music; the production of tones in all classes of wind and stringed instruments; the development of the musical scales; the history of musical pitch; the theory of consonance and dissonance, and some application in harmony; forced vibrations including resonance; the vowel theories.

Lecture topics: wave-motion; sound waves in air and solids and application in organ pipes and strings; characteristics of musical sounds; illustrations in physical apparatus and musical instruments; musical scales—the history of their development and the progressive change in musical pitch; study of the structure of the various orchestral wind instruments and of the pipe organ in detail; study of stringed

instruments including some history of their development and some of the latest inventions in musical instruments; forced vibrations including resonance in auditoriums, in instruments and in the voice; theory of consonance and dissonance and application in harmony; analysis and synthesis of musical tones; theories of yowel sounds.

#### **Politics**

e1-2—American government. 3 points each half-year. Professor Sait

8.20-9.35 P.M., Tu. and F., Room 405 Kent. Credit I, IV. Fee \$15 each half-year

This course will deal with the government of New York City, New York State and the nation. Emphasis will be laid upon the actual operations of governments, and the part played by national parties, etc. Some attention will be paid to the teaching of civics, the organization of civic clubs, the "school city," self-government, etc.

Identical with Politics 1-2 in the College course.

e103-104—Comparative politics and government. Half course each half-year. Professor Sait

11-12.40 A.M., S., Room 405 Kent. Credit II, IV. Fee \$10 each half-year

Comprehending the study of the nature and origin of state government and comparison of systems of government prevailing in England, France, Germany and the United States and the generalization of fundamental principles of public law common to them all. Administrative organization and relation of central institutions to political subdivisions of respective countries will also be treated.

# Public Speaking p. 30

# Psychology

e1-2—Elements of psychology. Lectures, demonstrations, discussions and recitations. 3 points each half-year. Dr. Hollingworth

4.30-5.45 P.M., Tu. and F., Room 407 Schermerhorn. Credit I, IV. Fee \$15 each half-year

This course is designed to give the student a knowledge of the essential facts and fundamental laws of mind. It serves as an introduction to the more advanced courses in psychology and philosophy, and also meets the requirements of boards of education for a course in general or pure psychology. The first part of the course deals with the nervous system and sensation, the second part with the higher memtal processes.

e3-4—Elements of experimental psychology. Lectures, recitations and laboratory work. 3 points each half-year. Dr. Poffenberger

7.30-9 P.M., Tu. and F., Room 407 Schermerhorn. Credit I, IV. Fee \$15 each half-year

This course introduces the student to some of the modern developments in psychology, showing how experimental methods are used in the study of mental processes and in tests of mental efficiency and deficiency.

Prerequisite: Psychology e1-2 or its equivalent. The course may be taken as a parallel to e1-2.

e141-142—Psychology of advertising. Half course. Lectures, demonstrations and discussions. 2 points each half-year. Either half may be taken separately. Dr. Strong

7.30-9.10 P.M., W., Room 407 Schermerhorn. Credit II, IV. Fee \$10 each half-year

The first term will be devoted to the problems of attracting favorable attention to the ad. Such factors as the following will be considered: nature of perception and attention, value of intensity, size of space, use of white space, motion, contrast, preferred position, repetition, novelty, illustrations, suggested action, the comic, color, atmosphere, instinct, and habits. The various mechanical and interest devices for holding attention will also be considered, such as complexity and unity of the layout, use of pointers, arrows, borders, etc., laws of reading, etc.

During the second term the problem of arousing interest and desire for the commodity will be studied. Such factors as the following will be considered: laws of association, memory, feeling, suggestion, reason, and desire; analysis of selling-points, analysis of prospective buyers, including individual, sex, and class differences; mechanical stunts as stimulants; experimental and practical methods of determining the value of ads; trade-marks, trade-names and slogans.

The material for the entire course is based upon the findings of experimental psychology and upon the results of actual campaigns.

e144—Laboratory work in advertising. Half course second half-year. Dr. Strong

(Hours to be arranged with the instructor) Room 407 Schermerhorn. Credit II, IV. Fee \$10

This course is designed to familiarize the student with experimental methods which may be applied to advertising problems. Comparison of experimental results will be made with actual returns in advertising campaigns.

The course will be given providing a sufficient number of students register. Names should be sent to the Director of Extension Teaching before February 1.

e145-146—Applied psychology. Half course. Lectures, demonstrations and discussions. 2 points each half-year. Either half may be taken separately. Dr. Strong

4.15-5.50 p.m., W., Room 407 Schermerhorn. Credit II, IV, half-course. Fee \$10 each half-year

The findings of experimental psychology will be considered in the light of their application to practical every-day, business and professional life. The first term will be concerned primarily with such topics as description and testimony; memory; belief; suggestion; and crime, its causes, detection and treatment. The second term will be devoted to such topics as habit or the development of skill; fatigue, both physical and mental; efficiency, personal as well as industrial; interests; and individual, sex and class differences.

#### ROMANCE LANGUAGES

#### French

cA1-A2—Elementary course. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—4.30-5.45 P.M., Tu. and F., Room 511 Journalism. Dr. ALEXANDER

Sec. 2—6.10-7.25 P.M., Tu. and F., Room 511 Journalism. Mr. Fortier

This course is intended for students who have no previous knowledge of French. The instruction is planned so as to enable students to read at sight ordinary French prose. Reading will constitute a large part of the work of the course. In connection with the reading, a careful study of the essentials of grammar and syntax will be taken up together with simple composition. Attention will be paid to correct pronunciation and as far as possible to the understanding of simple spoken French. Equivalent to Course A1-A2 as given in Columbia College.

Text-books: Thieme and Effinger, A French Grammar; Grandgent, Materials for French Composition, Part III; Douay, An Elementary French Reader; Daudet,

Trois Contes choisis; Laboulaye, Contes bleus; Vigny, Le Cachet rouge.

eA3-A4—Elementary course. Equivalent to Course eA1. 1½ points each half-year. Dr. FARNSWORTH

11-12.15, A.M., S. Room 712 Journalism. Credit I, IV. Fee \$7.50 each half-year

This course will enable the student to master the elements of French grammar, the regular verbs, simple idioms, a few of the irregular verbs, and enough of the subjunctive to make possible the reading of easy French. Some attention will be paid as far as possible to the training of the ear in understanding spoken French.

Text-books: Thieme and Effinger, A French Grammar; Douay, An Elementary French Reader.

eA5-A6—Elementary course. Equivalent to Course eA2. 1½ points each half-year. Dr. FARNSWORTH

11-12.15 A.M., S. Room 713 Journalism. Credit I, IV. Fee \$7.50 each half-year

This course is supplementary to eA3-4 and is given on Saturday.

eA8—Elementary course. 6 points second half-year. Mr. Imbert 4.30-5.45 p.m., M., Tu., Th. and F., Room 703 Journalism. Credit I, IV. Fee \$30

(For description of course see eA1-A2.)

eB1-B2—Intermediate course—grammar, reading and composition. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—4.30-5.45 P.M., M. and Th., Room 705 Journalism. Mr. BIGON-GIARI

Sec. 2-7-8.15 p.m., Tu. and F. Room 609 Journalism. Dr. Alex-Ander

The work will consist: first, of the study of French syntax; second, of the reading and translation of French prose; third, of translation from English into French; fourth, of outside reading. As far as practicable French will be the language of the class-room.

Text-books: Fraser and Squair, French Grammar; Voltaire, Zadig; Lesage, Gil Blas; Sandeau, Mademoiselle de la Seiglière; Balzac, Le Curé de Tours; La Fontaine, Fifty Fables; Molière, Le Bourgeois Gentilhomme; L'Avare.

Outside reading: Thiers, Bonaparte en Egypte.

Equivalent to Course B1-B2 as given in Columbia College.

eB3-B4—Intermediate course—grammar, reading and composition. Equivalent to Course eB1. 1½ points each half-year. Dr. FARNSWORTH

12.15-1.30 P.M., S. Room 712 Journalism. Credit I, IV. Fee \$7.50 each half-year

(For description of course see eB1-B2.)

e1-2—General introduction to the study of French literature. Composition, readings, lectures. 3 points each half-year. Dr. MULLER 4.30-5.45 P.M., Tu. and F., Room 705 Journalism. Credit I, IV. Fee \$15 each half-year

This course is designed both to complete the student's elementary training in the French language and to give him some knowledge of the history of French literature since 1600, and its more important authors.

Text-books: Pellissier, Précis d'Histoire de la Littérature Française; Corneille, Le Cid; Molière, Les Précieuses Ridicules and Tartuffe; Racine, Phèdre; Bossuet, Oraisons funèbres; Pascal, Les Provinciales; Voltaire, Prose (extracts, Cohn and Woodward edition); Marivaux, Le Jeu de l'Amour et du Hasard; Oxford, book of French verse; Victor Hugo, Hernani, Ruy Blas; Musset, Trois Comédies; Rostand, Cyrano de Bergerac.

Outside reading: First half-year, Corneille, Polyeucte; Molière, Les Femmes savantes; le Misanthrope; Racine, Iphigénie or Athalie. Second half-year, one of the following works: Balzac, Eugénie Grandet; Taine, L'Ancien Régime; Renan, Souvenirs d'Enfance et de Jeunesse; Hugo, Quatrevingt-treize.

Equivalent to Course 1-2 as given in Columbia College.

# e3-4—Conversation and composition based upon the history of France. 3 points each half-year. Mr. FORTIER

4.30-5.45 P.M., M. and Th., Room 707 Journalism. Credit I, IV. Fee \$15 each half-year.

Conducted entirely in French, giving facility in idiomatic expression both in writing and speaking. The work will consist of readings, dictations, themes and talks based upon French history and French daily life.

Equivalent to Course 3-4 as given in Columbia College.

# e5-6—History of French literature in the seventeenth century. 3 points each half-year. Professor Loiseaux

4.30-5.45 P.M., Tu. and F., Room 707 Journalism. Credit I, IV. Fee \$15 each half-year

The subject of the course is the history of French literature during the century of Louis XIV. The principal authors studied will be, Descartes, Pascal, Bossuet, Madame de Sévigné, La Rochefoucauld, La Bruyère, Corneille, Molière, Racine. Boileau and La Fontaine. The course is conducted entirely in French.

Text-books: Lanson, Histoire de la Lillérature Française (eleventh edition), and the works of the authors named above.

Equivalent to Course 5-6 as given in Columbia College and Barnard College.

e101-102—History of French literature in the seventeenth century. Full course each half-year. Professor Loiseaux

4.30-5.45 p.m., Tu. and F., Room 709 Journalism. Credit II, IV. Fee \$20 each half-year

Courses e102-102 consists of attendance at lectures in Course e5-6, supplemented by special research work.

# e103-104—History of French literature in the eighteenth century. Full course each half-year. Professor Loiseaux

4.30--5.45 p.m., M. and Th., Room 709 Journalism. Credit II, IV. Fee \$20 each half-year

The subject of the course is the history of French literature during the period, the intellectual life of which preceded the breaking out of the French Revolution. The principal authors studied will be Voltaire, Montesquieu, Jean-Jacques Rousseau, Diderot, d'Alembert and Beaumarchais. Some attention will be paid to the novelists, especially to Lesage and Prévot.

Text-books: Lanson, Histoire de la Littérature Française and the works of the authors named above.

Equivalent to Course 103-104 as given under the Faculty of Philosophy of Columbia University.

#### Italian

e1-2—Elementary course. 3 points each half-year. Professor Livingston

7-8.15 p.m., M., and Th., Room 712 Journalism. Credit I, IV. Fee \$15 each half-year

The aim of this course is to impart an accurate reading knowledge of modern Italian, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in Course 2 special attention will be paid to Italian composition.

e3-4—Advanced course. 3 points each half-year. Professor Livingston

4.30-5.45 P.M., Tu. and F., Room 308 Philosophy. Credit I, IV. Fee \$15 each half-year

In this course a great deal more reading is done than in e1-2. The two courses together may be considered a preparation to the graduate courses in the University.

#### Spanish

e1-2—Elementary course. 3 points each half-year. Professor Fon-

6.10-7.25 P.M., Tu. and F., Room 308 Philosophy. Credit I, IV. Fee \$15 each half-year

The aim of this course is to impart an accurate reading knowledge of modern Spanish, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in Course 2 special attention will be paid to Spanish composition.

Text-books: Loiseaux, Spanish Grammar, Elementary Spanish Reader, Spanish Composition; P. A. de Alarcon, El Capitan Veneno; Galdós, Marianela, Doña Perfecta; Carrión y Aza, Záragueta.

Outside reading: Valera, El Pajaro Verde; Lesage, Gil Blas (Padre Isla's translation.)

Equivalent to Course 1-2 as given in Columbia College.

e3-4—Advanced course. 3 points each half-year. Professor GERIG 4.30-5.45 P.M., M. and Th., Room 712 Journalism. Credit I, IV. Fee \$15 each half-year

Second year course. A continuation of course e1-2, in which emphasis will be placed on rapid reading of modern prose, on advanced composition and conversation.

Text-books: Hills and Ford, A Spanish Grammar; Crawford's Spanish Composition; Valdés, José; Galdós, Marianela; Valera, El Comendador Mendoza. There will be some outside reading in connection with the course.

Equivalent to Course 3-4 as given in Columbia College.

#### Secretarial Courses

The Department of Extension Teaching has provided for men and women a series of courses in secretarial studies. These courses are given in the afternoon and evening.

The object of these courses is properly to equip students who desire to become private secretaries or to hold important positions in offices as assistants to public officials or to persons engaged in professional pursuits. The students who undertake these courses in full must have had a high school education or its equivalent. A complete series will demand three years, although this may be reduced by attendance at Summer Sessions or by obtaining advanced standing on the presentation of evidence of having completed any course or its equivalent. A certificate will be issued upon the satisfactory completion of the series.

These courses are fully described in a special pamphlet which may be secured upon request.

#### Commerce and Finance

Commerce e1-2—Principles of economics. 3 points each half-year. Dr. Anderson

7.30-10 P.M., S., Room 512 Journalism. Credit I, IV. Fee \$15 each half-year

Finance e3-4-Money and banking. 2 points each half-year. Professor Agger

7.40 – 9.30 p.m., M., Room 603 Journalism. Credit I, IV. Fee \$10 each half-year

Accounting e3-4—Principles of accounting. 2 points each halfyear. Mr. Koopman

7.40-9.30 P.M., Th., Room 511 Journalism. Fee \$10 each half-year

Commerce e3-4—Business organization and administration. 2 points each half-year. Mr. Stevens

7.40-9.30 P.M., W., Room 512 Journalism. Fee \$10 each half-year

Commercial law e1-2—Contracts. 2 points (first half-year). Mr. Currier. Negotiable instruments, 2 points (second half-year). Professor Gifford

7.40-9.30 P.M., F., Room 405 Kent. Fee \$10 each half-year

## English

Note.—Secretarial students are required to take English eA1-2, English eB1-2, and two of the other English courses here described.

eA1-2—English composition. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—7-8.15 p.m., M. and Th., Room 705 Journalism. Dr. Wolff Sec. 2—7-8.15 p.m., Tu. and F., Room 705 Journalism. Mr. Haller

eB1-2—English composition. 2 points each half-year. Credit I, IV. Dr. Wolff

 $8.45 \hbox{--} 9.35$  P.M., M. and Th., Room 707 Journalism. Fee \$10 each half-year

e19-20—History of American literature. 2 points each half-year. Dr. Van Doren

9--10.40 a.m., S., Room 703 Journalism. Credit I, IV. Fee \$10 each half-year

e21-22—English literature from 1780-1830. 2 points each half-year. Dr. Patterson

8.20-10 p.m., W., Room 507 Journalism. Credit I, IV. Fee \$10 each half-year

e23-24—English literature from 1830 to 1890. 2 points each half-year. Professor Tucker

10.40-12.20 A.M., S., Room 705 Journalism. Credit I, IV. Fee \$10 each half-year

#### French

eA1-2—Elementary course. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—4.30–5.45 p.m., Tu. and F., Room 511 Journalism. Dr. Alexander Sec. 2—6.10–7.25 p.m., Tu. and F., Room 511 Journalism. Mr. Fortier

eB1-2—Intermediate course. Grammar, reading and composition. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—4.30–5.45 P.M., M. and Th., Room 705 Journalism. Mr. BIGON-GIARI

Sec. 2-7-8.15 P.M., Tu. and F., Room 609 Journalism. Mr. IMBERT

e3-4—Conversation and composition based on the history of France. 3 points each half-year. Mr. FORTIER

4.30-5.45 P.M., M. and Th., Room 707 Journalism. Credit I, IV. Fee \$15 each half-year

#### German

eA1-2—Elementary course. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—4.30-5.45 P.M., Tu. and F., Room 605 Journalism. Professor Heuser

Sec. 2—8.35–9.50 p.m., M. and Th., Room 605 Journalism. Dr. Porterfield

eB1-2—Intermediate course. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1-4.30-5.45 p.m., Tu. and F., Room 609 Journalism. Mr. Schulze

Sec. 2-7-8.15 P.M., M. and Th., Room 605 Journalism. Mr. Palmblad

e3-4—Composition and oral practice.  $1\frac{1}{2}$  points each half-year. Credit I, IV. Fee \$7.50 each half-year

Sec. 1—11–12.15 A.M., S., Room 609 Journalism. Mr. Bechert Sec. 2—6.10–7.25 P.M., W., Room 605 Journalism. Mr. Betz

#### History

eA1-2—General history. 3 points each half-year. Dr. Humphrey 8.20-9.35 p.m., Tu. and F., Room 612 Journalism. Credit I, IV. Fee \$15 each half-year

#### Politics

e1-2—American government. 3 points each half-year. Professor Sait

8.20--9.35~P.M.,~Tu. and F., Room 405~Kent. Credit I, IV. Fee \$15 each half-year

## Spanish

e1-2—Elementary course. 3 points each half-year. Professor Fon-

6.10--7.25~P.M., Tu. and F., Room 308 Philosophy. Credit I, IV. Fee \$15 each half-year

## Stenography and Typewriting

Stenography e1—Elementary stenography. 4 points first half-year. Mr. Beygrau, Mr. Healey, and an assistant. Room 601 Journalism

Sec. 1—4.15–5.15 (typewriting). Fee \$15 each half-year; 5.15–6.15 (stenography). Fee \$20 each half-year. M., Tu., W. and Th. Fee \$30 each half-year if taken together

Sec. 2—5.15-6.15 (typewriting). Fee \$10 each half-year; 7.30-9.10 p.m. (stenography). Fee \$15 each half-year. Tu. and F. Fee \$20 each half-year if taken together.

For other courses in Stenography and Typewriting which may be taken by secretarial students with the permission of the Director, see p. 63.

### Elective Studies

Commercial English e1-2—Business English and commercial correspondence. Mr. Duncan

7.40-9.30 P.M., Tu., Room 511 Journalism. Fee \$20 each half-year

Social secretary e1-2—Correspondence. Miss Davis

4.30-5.45 P.M., M. and Th., Room 511 Journalism. Fee \$15 each half-year

Library training e1-2—Indexing, filing and cataloguing as applied in business. Miss Williams

8.20 -- 9.10 P.M., M. and Th., Room 609 Journalism. Fee \$10 each half-year

## Semitic Languages

- e1-2—Biblical Hebrew. Elementary course. Grammar and selections from the Pentateuch and Psalms. 2 points each half-year. Mr. MARGOLIS
  - 3.10-4 P.M., Tu. and F., Room 706 Philosophy. Fee \$10 each half-year
- e3-4—Biblical Hebrew. Advanced course. 2 points each half-year. Mr. Margolis
  - 5.10-6 P.M., Tu. and F., Room 612 Journalism. Fee \$10 each half-year

During the first half-year the books of I and II Samuel will be read with special attention to Hebrew syntax. In the second half-year Mishnic Hebrew will be studied in the Pirke Aboth (Ethics of the Fathers).

- e5-6—Jewish history and literature. 2 points each half-year. Mr. Margolis
  - 4.10-5 P.M., Tu. and F., Room 612 Journalism. Fee \$10 each half-year

Consists of lectures on Jewish history from the period of the conclusion of the Babylonian Exile to the present day. Particular attention will be directed to the treatment of Jewish Post-Biblical literature, to the history of the Jews in the various lands of the Diaspora and to modern Jewish cultural movements.

- e7—Recent archaeological discoveries in Western Asia. Excavations and the decipherment of the inscriptions. 2 points first half-year. Dr. Vanderburgh
  - 4.10-5 P.M., Tu. and F., Room 713 Journalism. Fee \$10

This course aims to give an illustrated account of the opening of the mounds on the sites of the ancient cities of Babylonia and Assyria. Especial attention will be paid to the discoveries at Babylon, Nineveh, Nippur, Ur of the Chaldees, Erech and Eridu. All the principal archives will be discussed, that is, those from the royal palaces, those describing the foundations and restorations of temple structures and the many important historical records. The Babylonian Pantheon and religion with its prayers and hymns verging toward monotheism, the legendary literature, the omens, the epistolary, commercial and legal material, as well as the

habits and customs of the daily life of all the periods will be considered so far as possible. This course is an introduction to Course e8 in the second half-year.

e8—Elementary Assyrian. Initial steps in Assyriology. 2 points second half-year. Dr. Vanderburgh

4.10-5 P.M., Tu. and F., Room 713 Journalism. Fee \$10

The origin of the cuneiform script with discussion of its phonetic and ideographic values. Reading lessons from J. D. Prince, Assyrian Primer. First steps in the study of the literature, in connection with which the most important inscriptions will be discussed, especially with reference to historical dates and events.

#### Social Secretary

e1-2—Correspondence. 3 points each half-year. Miss Davis 4.30-5.45 P.M., M. and Th., Room 511 Journalism. Fee \$15 each half-year

This course is intended for young women desiring employment as social secretaries and for those wishing to gain facility in the various forms of letter writing incident to wide activity. The aim is to familiarize the writer with the best current usage as to form and arrangement, and to develop ease and attractiveness of expression. The work will take in a brief consideration of the place of letter writing in life and literature; a careful study of the best published letters, with discussion establishing the elements they contain which make for human interest; a survey of postal regulations and constant practice in writing and answering the various forms of letters, both practical and friendly; formal and informal, including letters upon special occasions such as death, loss or departure, letters to inferiors, telegrams, cards, and acknowledgments Students will be expected to have a grasp of elementary English grammar.

### Sociology

e141—Social institutions. Lectures, readings and discussions. First half-year. Mr. Shenton

7.30-9.20 P.M., W., Room 605 Journalism. Fee \$10. Credit II (half course), IV

A study of the social institutions of religion, education, kinship (including family and marriage), law (including property and contract), and politics (form of government); the origin, evolution and organization of each; analysis of the present forms; possibilities of control by society; probable results of the applications of certain specific forms of such social control.

e142—Social problems. Lectures, readings and discussions. Second half-year. Mr. Shenton

7.30-9.20 P.M., W., Room 605 Journalism. Fee \$10. Credit II (half course), IV

A series of studies of the social population, including the country life movement, special problems of urban congestion, race amalgamation and immigration; the social aspects of the movements for human betterment, including eugenics and socialized philanthropy; the problems of industrial reorganization and of abnormal society.

e151—Principles of sociology. Lectures, readings, discussions and exercises. First half-year. Mr. Shenton

7.30-9.20 P.M., M., Room 703 Journalism. Credit II, full course, Fee \$20; Credit II, half course, Fee \$10; Credit I, IV, 2 points, Fee \$10.

A course in the elements of social theory, the scope, method and problems of sociology and the structure and movements of the population. An analysis of the social mind. The methods of scientific study of society will be discussed and applied to current sociological material and the problems of vital social interest.

Credit for full course will be given only to those who in addition to the regular work complete and are examined in a course of specially assigned readings and who have done certain research or field work.

Text-book: Giddings, Descriptive and Historical Sociology.

e152—Historical evolution of society. Lectures, readings and discussions. Second half-year. Mr. Shenton

7.30-9.20 p.m., M., Room 703 Journalism. Credit II, full course, Fee \$20; Credit II, half course, \$10; Credit I, IV, 2 points, Fee \$10.

The origin of man and the beginnings of association. Evolution of human association and of the social mind. Rise of civilization, liberty and democracy. The evolution of a world society and an examination of the theory of progress. The social process physical and psychical. Social causation.

Extra credit on conditions similar to those in e151. Fees and credits same as for

Text-book: Giddings, Principles of Sociology.

Spanish, p. 57, 71

Statics, p. 48

Statistics, p. 23

### STENOGRAPHY AND TYPEWRITING

## Morning, Afternoon and Evening Classes

Stenography

These courses are designed for men and women who desire to become secretaries or shorthand and typewriting teachers.

A thorough presentation of the Isaac Pitman system will be given. The successful completion of the fundamental principles of shorthand will be followed by a presentation of phrases, contractions, commercial and legal work. Those who acquire proficiency in shorthand and who are able to speak and write German will have an opportunity to adapt this system of shorthand to the German language.

Outside reading: Columbia University is in possession of a shorthand library consisting of over five hundred volumes which will be placed at the disposal of students in stenography.

Typewriting

Scientific typewriting. Touch operating as practised by rapid operators. Typewriting machines will be provided for the use of the students.

e1—Elementary stenography. Mr. Beygrau, Mr. Healey and an assistant. Room 601 Journalism

Sec. 1—10-11 A.M. and 1-2 P.M. (stenography). Fee \$35 each half-year; 11-12 A.M. and 2-3 P.M. (typewriting). Fee \$25 each half-year. M., Tu., W., Th. and F. Fee \$50 each half-year if taken together

Sec. 2—4.15-5.15 P.M. (typewriting). Fee \$15 each half-year; 5.15-6.15 P.M. (stenography). Fee \$20 each half-year. M., Tu., Th. and F. Fee \$30 each half-year if taken together.

Sec. 3—5.15-6.15 P.M. (typewriting). Fee \$10 each half-year; 7.30-9.10 P.M. (stenography). Fee \$15 each half-year. Tu. and F. Fee \$20 each half-year if taken together

- e2—Elementary stenography. Course e1 repeated in the second halfyear at the same hours
- e3—Intermediate stenography. Mr. Beygrau, Mr. Healey and an assistant. Room 601 Journalism

Sec. 1—4.15-5.15 p.m. (typewriting). Fee \$15 each half-year; 5.15-6.15 p.m. (stenography). Fee \$20 each half-year. M., Tu., Th. and F. Fee \$30 each half-year if taken together

Sec. 2—5.15-6.15 P.M. (typewriting). Fee \$10 each half-year; 7.30-9.10 P.M. (stenography). Fee \$15 each half-year. Tu. and F. Fee \$20 each half-year if taken together

- e4—Intermediate stenography. Course e3 repeated in the second half-year at the same hours
- e5—Advanced stenography. Mr. Beygrau, Mr. Healey and an assistant. Room 601 Journalism

Sec. 1—10–11 a.m. and 1–2 p.m. (typewriting). Fee \$25 each half-year; 11-12 a.m. and 1-3 p.m. (stenography). Fee \$35 each half-year. M., Tu., W., Th. and F. Fee \$50 each half-year if taken together

Sec. 2—4.15-5.15 P.M. (stenography). Fee \$20 each half-year; 5.15-6.15 P.M. (typewriting). Fee \$15 each half-year. M., Tu., Th. and F. Fee \$30 each half-year if taken together

- e6—Advanced stenography. Course e5 repeated in the second halfyear at the same hours
  - e7—Office training. Mr. Beygrau, Mr. Healey and an assistant 4.15-6.15 p.m., F., Room 601 Journalism. Fee \$10. First half-year

Consists of a practical application of stenography and typewriting to business customs: transcription of notes; writing letters, addressing envelopes, instruction concerning outgoing and incoming mail; postal information, forms of remittances, filing correspondence according to alphabetical, numerical, topical and geographical methods; the use of the phonograph; the use of carbon paper, the mimeograph, the roller-copier; business ethics; meeting callers; reference books; preparation of pay-roll; billing, extensions, invoices, statements, telegrams and cablegrams; the use of the telephone; copying from rough drafts; editing dictated matter; preparation of copy for the printer; proof-reading; practice in copying of contracts and legal documents,

- e8—Office training. Course e7 repeated in the second half-year at the same hours
- e9—Stenotype writing. A course in the use of the stenotype will be given if called for. Hours to be arranged. Mr. Beygrau and Mr. Healey

#### Structural Mechanics

NOTE.—Courses eX1-2, eZ1, eZ2, eZ3-4 are intended solely for men who are engaged in practical work. They do not correspond to day courses and no university credit is allowed for them.

# eX1-X2—Elements and applications of algebra, geometry and trigonometry. Mr. HASBROUCK

6.10-7 P.M., M. and Th., Room 408 Avery. Fee \$15 each half-year

The introductory work of this course will consist of a drill in the principles and applications of elementary algebra through quadratics. This will be followed by a brief treatment of a few of the most fundamental propositions of geometry. The last part of the course will be devoted to plane trigonometry and its applications to problems of a purely practical nature, and will include drill in the use of logarithms and the slide rule. The course is intended solely for men who are engaged in practical work and who do not intend to enter the University.

# eZ1—Elements of coplanar statics. First half-year, Professor Burnside

6.10-7 P.M., Tu. and Th., Room 407 Avery. Fee \$15

Algebraic and graphic methods are used in parallel; composition and resolution of forces; principles of equilibrium; determination of stresses in simple jointed frames, such as trusses and cranes; centers of gravity and centroids.

Text-book: Maurer's Technical Mechanics, Part I.

Prerequisites: Course eX1-X2, or its equivalent.

# eZ2—Elements of mechanics of materials. Second half-year. Professor Burnside

6.10-7 P.M., Tu. and Th., Room 407 Avery. Fee \$15

Continuation of course eZ1. Moments of inertia and radii of gyration of plane areas, built up beam and column sections; direct tension, compression and shear strengths of beams, columns and riveted joints; deflection of beams.

Text-book: Murdock's Mechanics of Materials.

Prerequisite: Course eZ1.

# eZ3-Z4—Designs and details of framed structures. Professor Schroeder

7-9.30 P.M., M. and Th., Room 405 Avery. Fee \$25 each half-year

Continuation of course eZ2. Complete designs, details and estimates of costs will be made for a wooden roof truss, a steel truss, a plate girder bridge and a structure intended to meet the individual need of the student.

A special feature of the course is that all of the study, calculations and execution necessary for each complete design will be done in the drafting-room under the direction of the instructor.

Essentially all of the information required by the student relative to the solution of each design will be given in notes prepared by the instructor. The notes will be used as a text; they illustrate the calculations for, and lay-outs of, structures similar to those assigned as problems and will be supplemented by occasional lectures.

Prerequisites: Mechanical drafting e1-2, Architecture eZ2, or their equivalents.

## Surveying, p. 26

### Zoölogy

e1-2—Elementary biology and zoölogy. Lectures and laboratory. 2 points each half-year. Professor McGregor

1.30-2.30 P.M., S., Room 619 Schermerhorn. (Laboratory, 2.30-4.20 P.M., S., Room 618 Schermerhorn.) Credit I, IV. Fee \$10 each half-year. An additional fee of \$2 is charged for materials

The earlier part of this course is designed to give the student an elementary knowledge of the basic principles of biology and the general physiology of organisms. Protoplasm, the cell, unicellular organisms, plant and animal in relation to each other and to the inorganic world are the chief topics discussed in the first half. The second term is mainly devoted to the study of the structures and adaptations of some of the more important groups of animals, with dissection of types in the laboratory. Among the types studied may be mentioned amœba, paramecium, hydra, earthworm, lobster, grasshopper, clam and dogfish.

A text-book will be used and collateral reading assigned.

Prerequisite: An elementary knowledge of chemistry is desirable.

# COURSES IN LOCAL CENTRES BROOKLYN

Columbia University will offer during the academic year 1913-1914 courses of instruction for men and women of Brooklyn. These will be given in the afternoon and evening. They will be open to all students, fitted to undertake the courses, and for those who are matriculated in accordance with the rules of the faculties of the colleges of the University, will count toward the degrees. The Brooklyn centre is located at the Prospect Heights School, 51 Seventh Avenue, near Lincoln Place, and three blocks from Flatbush Avenue. Students may consult Mr. William K. Lane at the school.

When additional courses beyond those named below are offered in Brooklyn they will be announced in special circulars.

The points and fees are stated for the half-year.

### Architecture

The following evening courses in architecture will be offered in the year 1913-14. They belong to the first year of the School of Architecture and will count toward the certificate and the degree in architecture for those who have passed the entrance examinations. (See special circular.) They are open, however, to all qualified students without examination.

For schedules of subjects see the Announcement of the Faculty of Fine Arts. Detailed information concerning the department of architecture in Extension Teaching may be had on application to Curator Bach, Columbia University.

The number of points is indicated with the statement of the course.

e1—The elements of architecture. 3 points first half-year. Mr. Allen 8-10 p.m., W. and F., one hour lecture and three hours drafting. Credit V. Fee \$15

Mouldings, the orders, intercolumniation and superposition, balustrades, arcades. doors, roofs, spires, vaults, domes.

- e2—The elements of architecture. 3 points second half-year. Mr. Allen
  - 8-10 P.M., W. and F. Credit V. Fee \$15

Exercises in applications of elementary architectural forms as given in course e1; of shades and shadows as given in course e5, both of which are prerequisite.

Given if called for by eight students.

- e5-Shades and shadows. 4 points first half-year. Mr. Allen
- 7-7.50 p.m., M., W. and F. 7.50-9.10, Tu. Credit V. Fee \$20 Shades and shadows, projections and intersections; 3 hours lectures, 2 hours in drafting room. Equivalent to Architecture 5 of the regular course.
- e6-Perspective. 3 points second half-year. Mr. Allen
- 7-7.50 p.m., M. and W. 7.30-9.10 p.m., Tu. Credit V. Fee \$15 Twelve plates are required.

Equivalent to Architecture 7 of the regular course.

Given if called for by eight students.

#### Education

Education A—General and educational psychology. Lectures, practical exercises, recitations and required readings. 3 points each half-year. Mr. REJALL

7.20-8.35 P.M., Tu. and F. Credit I, IV. Fee \$15 each half-year

This course is designed to give the student a knowledge of the essential facts and fundamental laws of mind. It applies the principles of general psychology to education and teaching and presents the elements of the special psychology of interest, work, fatigue, practice, intellectual development in childhood and adolescence, individual and sex differences, motor education, training in appreciation and taste, and of the more common school subjects.

### English

eA1-A2—English composition. Lectures, themes and conferences. 3 points each half-year. Dr. Miles

8.35-9.50 P.M., M. and Th. Credit I, IV. Fee \$15 each half-year

This course corresponds to English A in Columbia College. It aims to train the student to express his thought in clear idiomatic English with precision and force. A number of essays, plays and stories are read to form a basis for the composition work. Considerable attention is given to the personal style of each student.

e41-42—The development of the English drama. 2 points each half-year. Mr. CLAYTON HAMILTON

4-5.40 P.M., W. Credit I, IV. Fee \$10 each half-year

In this course, the development of the English drama will be traced historically from its origin in the medieval miracle plays until the present time. More than half the year will be devoted to a study of the Elizabethan period. The student will be expected to read a large number of plays, representing the best accomplishment of every English dramatist of the first rank. Throughout the courses especial emphasis will be cast upon the dramaturgic quality of the plays considered; and the whole body of English dramatic literature will be looked at in the light of the general theory of the theatre.

#### French

eA1-A2—Elementary course. 3 points each half-year. Dr. FARNS-WORTH

7.20-8.35 P.M., Tu. and F. Credit I, IV. Fee \$15 each half-year

This course is intended for students who have no previous knowledge of French. The instruction is planned so as to enable students to read at sight ordinary French prose. Reading will constitute a large part of the work of the course. In connection with the reading a careful study of the essentials of grammar and syntax will be taken up together with simple composition. Attention will be paid to correct pronunciation and as far as possible to the understanding of simple spoken French.

Text-books: Thième and Effinger, A French Grammar; Grandgent, Materials for French Composition, Part III; Douay, An Elementary French Reader; Daudet, Trois Contes choisis; Laboulaye, Contes bleus; Vigney, Le Cachet rouge.

Equivalent to Course A1-A2 as given in Columbia College.

eB1-B2—Intermediate course—grammar, reading and composition. 3 points each half-year. Dr. Farnsworth

8.40-9.55 P.M., M. and Th. Credit I, IV. Fee \$15 each half-year

The work will consist: first, of the study of French syntax; second, of the reading and translation of French prose; third, of translation from English into French fourth, of outside reading. As far as practicable French will be the language of the class-room.

Text-books: Fraser and Squair, French Grammar; Voltaire, Zadig; Lesage, Gil Blas; Sandeau, Mademoiselle de la Seiglière; Balzac, Le Curé de Tours; La Fontaine, Fifty Fables; Molière, Le Bourgeois Gentilhomme; L'Avare.

Outside reading: Thiers, Bonaparte en Egypte.

Equivalent to Course B1-B2 as given in Columbia College.

#### German

eA1-A2—Elementary course. 3 points each half-year. Mr. REICHLING 7.20-8.35 p.m., M. and Th. Credit I, IV. Fee \$15 each half-year

For course eA1 no previous knowledge of German is required. Prerequisite to eA2: eA1, eA3-4 or sA1 and sA2 (Summer Session courses).

This course familiarizes the beginner with the common vocabulary and the fundamental grammatical facts of the language, so as to enable him to read easy German at sight. Reading forms part of the work from the beginning, together with grammar study, easy exercises in composition and a considerable amount of colloquial practice in the phrases of every-day life. Although this course is intended for beginners it may be taken with profit by those who have some previous knowledge of the language but are deficient in grammar.

Text-books: Thomas, Practical German Grammar, 4th edition (Holt); Hervey, Supplementary Exercises to Thomas's Grammar, 4th edition (Holt); Guerber, Märchen und Erzablungen (Heath).

Course eA2 completes the College Entrance requirement in Elementary German.

#### History

e15-16—American history. 2 points each half-year. Mr. Gambrill 8.35-9.25 a.m., Tu. and F. Credit I, IV. Fee \$10 each half-year

A general survey of American history from the Age of the Discoveries to the present. Among the more important topics treated are: Old-World conditions which explain the colonization of North America; European institutions in America; the revolt of the colonies from England; the attempt at union under the Articles of Confederation; the formation of the constitution and the Federalist system; the revolution of 1800; European complications; the growth of national consciousness; immigration and democracy; the slavery question and abolition; the development of sectionalism; westward expansion and the War with Mexico; slavery in the territories; the republican party; the election of 1800 and Secession; the Civil War; reconstruction; railroads and the opening of the west; civil service reform; the currency and the tariff; the War with Spain; recent problems.

Text-book: Elson, History of the United States.

### Italian

e1-2-Elementary course. 3 points each half-year. Dr. FARNS-WORTH

8.35-9.50 P.M., Tu. and F. Credit I, IV. Fee \$15 each half-year

The aim of this course is to impart an accurate reading knowledge of modern Italian, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in e2 special attention will be paid to Italian composition.

#### Latin

e97-98—Colloquial Latin. 2 points each half-year. Miss WyE 9-10.30 A.M., S. Credit IV. Fee \$10 each half-year

The use of the oral or direct method in linguistic teaching has until recently been confined to modern languages. It has been used with remarkable success in the German Reform Schools, especially in the Musterschule at Frankfurt-am-Main. Its application to ancient languages has been delayed partly by the feeling that those languages are "dead," partly by the lack of teachers qualified to use Greek and Latin as the medium of instruction in the class room. Within the last few years, however, this method has been applied to Greek and Latin by Dr. W. H. D. Rouse, at the Perse School, Cambridge, England, with such success that the English Board of Education published the results of a special investigation of the work of this school.

#### Mathematics

eX1—Algebra, elementary and intermediate course (complete). First half-year. Mr. Lane

7.15-8.30 P.M., M., Tu., Th., F. Fee \$25

This course covers elementary algebra to quadratics and beyond. It includes the fundamental operations, factoring, fractions, ratio and proportion, quadratics, binomial theorem (simple forms), progressions, and graphical methods.

Text-book: Wentworth's New School Algebra.

eX2—Algebra. Course eX1 repeated. Second half-year. Mr. Lane

8.30-9.45 p.m., M., Tu., Th., F. Fee \$25

e¥1—Plane geometry (complete). First half-year. Mr. Lane 8.30-9.45 p.m., M., Tu., Th., F., Room 214 Hamilton. Fee \$25

The first five books of Wentworth's Geometry, including rectilinear figures, the circle, proportion, areas of polygons, regular polygons and circles.

Text-book: Wentworth's Geometry (Wentworth's and Smith's revision).

eY2—Plane geometry. Course eY1 repeated. Second half-year. Mr. Lane

7.15-8.30 P.M., M., Tu., Th., F. Fee \$25

eA1—Trigonometry and algebra. 3 points first half-year. Mr. GORDON 7.20-8.35 P.M., Tu. and F. Credit I, IV. Fee \$15

The subject-matter of this course includes quadratic equations, variations, trigonometric functions, circular measure, relations between the functions, functions of several angles, inverse functions, trigonometric equations, logarithms, solution of triangles, complex numbers and the theory of algebraic equations so far as is necessary for the development and use of Horner's method for the solution of numerical equation.

Elementary algebra through the quadratic equation is presupposed.

Equivalent to Mathematics A1 or A4 in the Announcement of Columbia College.

eA2—Solid geometry. 3 points second half-year. Mr. GORDON 7.20-8.35 p.m., Tu. and F. Credit I, IV. Fee \$15

In addition to the usual theorems on lines, planes and solids, the geometry of the sphere and the development of space intuition, this course lays special stress upon the purely logical side of the subject and the nature of mathematical proof. Plane geometry is presupposed.

Equivalent to Mathematics A2 in the Announcement of Columbia College.

e3—Analytical geometry. 3 points first half-year. Mr. Nowlan 8.15-9.30 p.m., M. and Th. Credit I, IV, V. Fee \$15

Introduction to algebraic geometry, dealing with such topics as coordinate systems, transformations, loci and their equations, the straight line, circle, parabola, ellipse, hyperbola, the geometric interpretation of the general equation of second degree, and the elements of three-dimensional geometry.

eA1 and eA2 or their equivalents are presupposed.

Equivalent to Mathematics 3 or 4 in the Announcement of Columbia College, and of the Schools of Mines, Engineering and Chemistry.

e16—Differential calculus. 3 points second half-year. Mr. Nowlan 8.15–9.30 p.m., M. and Th. Credit I, IV, V. Fee \$15

The notions and operations of function, differentiation, and integration are presented with applications to geometry, physics and mechanics.

e3 or its equivalent is presupposed.

Equivalent to Mathematics 15 in the Announcement of Columbia College.

#### **Politics**

e1-2—American government. 3 points each half-year. Mr. GAMBRILL 7.15—8.30 p.m., Tu. and F. Credit I, IV. Fee \$15 each half-year

This course will deal with the government of New York City, New York State and the nation. Emphasis will be laid upon the actual operations of governments, the part played by national parties, etc. Some attention will be paid to the teaching of civics, the organization of civic clubs, the "school city," self-government, etc Identical with Politics e1-2 in the College course.

## Spanish

eA1-A2—Elementary course. 3 points each half-year. Dr. FARNS-worth

8.35-9.50 P.M., M. and Th. Credit I, IV. Fee \$15 each half-year

The aim of this course is to impart an accurate reading knowledge of modern Spanish together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in Course A2 special attention will be paid to Spanish composition.

Text-books: Loiseaux, Spanish Grammar, Elementary Spanish Reader, Spanish Composition; P. A. de Alarcon, El Capitan Veneno; Galdos, Marianela, Doña Perfecta; Carrion y Aza, Zaragueta.

Outside reading: Valera, El Pajaro Verde; Lesage Gil Blas (Padre Isla's translation).

Equivalent to Course 1-2 as given in Columbia College.

#### ELMHURST

In February, 1913, Columbia University through Extension Teaching took the initial steps toward founding an outside centre at Elmhurst, Long Island, by offering a course in English Literature. The appreciation shown by the teachers of Elmhurst and the vicinity has led the Administrative Board to add to the course already established an extra one in Education. It is hoped that in time several other courses may be offered as the demand develops. All the classes of the centre are conducted in the Newtown high school building in Elmhurst.

Persons interested in these courses may consult Miss Caroline Mayhew, Assistant Principal of Public School No. 86 of the Borough of Queens. Further information may also be obtained by addressing the Secretary of Columbia University.

The points and fees are stated for the half-year.

#### Education

Education A—General and educational psychology. Lectures, practical exercises, recitations and required readings. 3 points each half-year. Mr. REJALL

4-5.40 P.M., Th., Room 202 Newtown High School. Credit I, IV. Fee \$15 for each half-year

This course is designed to give the student a knowledge of the essential facts and fundamental laws of mind. It applies the principles of general psychology to education and teaching and presents the elements of the special psychology of interest, work, fatigue, practice, intellectual development in childhood and adolescence, individual and sex differences, motor education, training in appreciation and taste, and of the more common school subjects.

### English

e21-22—English literature from 1780-1830. 2 points each half-year. Dr. Patterson

4-5.40 P.M., M., Room 202 Newtown High School. Credit I, IV. Fee \$10 each half-year

After tracing briefly the signs of the Romantic movement in England in the eighteenth century, this course will treat in considerable detail the poetry of Coleridge, Keats, Shelley and Byron; and the prose works of De Quincey, Hunt, Hazlitt and Landor. Minor writers such as Southey, Moore, Peacock, Campbell, Rogers and Wilson will be discussed briefly if time allows.

#### JERSEY CITY

A centre will be established in Jersey City in September, 1913. The courses to be given will be described in a special circular, mailed upon request.

#### PATERSON

Courses will also be given in Paterson. A special circular will be prepared describing these courses in detail.

#### TRENTON

Courses will be given in Trenton as will be described in a special announcement mailed upon application.

#### ACADEMIC CALENDAR

1913-Sept. 15-Monday, Entrance examinations begin

Sept. 17-Wednesday, Registration begins

Sept. 24—Wednesday, First half-year (160th year) begins Sept. 25—Thursday, Extension Teaching courses begin Oct. 4—Saturday, last day for changes in registration

Oct. 11—Saturday, last day of registration for credit in first half-year

21-Tuesday, Stated meeting of University Council Oct.

4-Tuesday, Election Day, holiday Nov.

Nov. 26-Wednesday, University Service in St. Paul's Chapel Nov. 27—Thursday, to November 29, Saturday, inclusive— Thanksgiving holidays

16-Tuesday, Stated meeting of University Council Dec. Dec. 21-Sunday, Memorial Service in St. Paul's Chapel

Dec. 22-Monday, to Jan. 3, 1914, Saturday, inclusive-Christmas holidays

1914—Jan. 26-Monday, Examinations (Extension Teaching) begin 4-Wednesday, Second half-year begins. University Ser-Feb. vice in St. Paul's Chapel

Feb. 14-Saturday, last day for changes in registration 17—Tuesday, Stated Meeting of University Council 23—Monday, for Washington's Birthday, holiday Feb. Feb.

Apr. 9-Thursday, to Apr. 13, Monday, inclusive-Easter holidays

21—Tuesday, Stated Meeting of University Council Apr.

25-Thursday, Final examinations (Extension Teaching) May

30-Saturday, Memorial Day, holiday May May 31-Sunday, Baccalaureate service June 3-Wednesday, Commencement Day

15—Monday, Entrance examinations begin 6—Monday, Fifteenth Summer Session opens June July 14-Friday, Fifteenth Summer Session closes Aug.

Sept 14—Monday, Entrance examinations begin

Sept. 16-Wednesday, Registration begins

Sept. 23—Wednesday, First half-year (161st year) begins

The academic year is thirty-seven weeks in length, ending on the second Wednesday in June although the actual class work is uniformly

assigned to fifteen weeks each half year.

The exercises of the University are suspended on Election Day, Thanksgiving Day and the two following days, for two weeks at Christmas, (December 22, 1913, to January 3, 1914, inclusive), on Washington's Birthday, from the Thursday before Good Friday through the following Monday, and on Memorial Day.

The complete academic calendar will be found in the University Catalogue and, so far as it refers to the students studying under any

faculty, in the announcement of that faculty.

# Directory of Students in Extension Teaching 1912-1913

"Hartley," "Livingston," "Brooks," and "Whittier" refer to the

University Residence Halls. The names of women are printed in italics.

For names of students not in Directory, consult the Registrar. "Opt." indicates students in Practical Optics.

The word "Street" is omitted in all addresses.

430 W. 119 Abbot, J. Abbott, F. 450 W. 149 Abromeit, M. F. Elizabeth Abt, F. W. Hartley Ackerman, W. 226 Paterson Adam, R. 460 Riverside Dr. Carlstadt, N. J. Adams, G. Adams, J. D. (Opt.) 411 W. 124
Adams, V. A.
Addington, S. 3440 Bway 452 Riverside Dr. Adelson, M. Adler, I. M. 283 Stanton Adler, M. M. 593a Macon, Bklyn Adler, R. 152 W. 77 Adler, S. L. 347 W. 55 8 W. 114 60 W. 109 Agramonte, E. Ahelson, G. Aidman, H. Albrecht, B. 1417 Vyse ave. Aleinikoff, S. 52 E. 121 Alexander, E. I W. 68 Alexander, F. J. 1790 Sedgwick ave. Alexander J. 41 W. 84 172 W. 79 346 E. 29 Alexander, R. J. Alflee, E. V. Allan, A. C. 1230 Amsterdam Allen, G. Hartley 59 W. 49 512 W. 122 Allen, M. D. Allison, M. M. Alpaugh, E. R. 99 Mercer, Jersey City Alperin, J. 41 Diamond, Bklyn Amico, P., Jr. 2187 Second ave. Anderson, B. Dobbs Ferry 296 E. 161 500 W. 111 180 W. 94 Hartley Anderson, H. H. Anderson, M. Andresen, M. Andrews, G. R. Anthony, H.

Appelberg, W. 1654 Webster ave. Arcé, J. M. Hartley Arida, R. 118 W. 22 Armington, A. F. 419 W. 119 Armstrong, J. 21 Ravina ave., Yonkers

Armstrong, L. M. 251 W. 88 21 E. 57 Arnheim, S. W. Arnold, Mrs. J. L. 502 W. 113 Aronstam, L.

199 Eighth ave., Bklyn Artand, T. P. 79 & Bway Ash, C. C. (Opt.) 547 W. 123 Ash, C. C. (Opt.) Ashby, H. R. 34 W. 72 Ashton, J. O.

Askam, L. E. Great Neck, L. I. d'Autremont, H. H. 627 W. 113
Averill, N. 430 W. 118 1648 Ave A Axelrod, J. Axford, R. B. Ayer, E. Ridgewood 519 W. 121 Babcock, B. E.

16 N. Eighth ave., Mt. Vernon Bachrach, D. J. 18 E. 60

Bacon, M. C.
121 N. Ninth ave., Mt. Vernon
Badetty, M. M.

58 Herriman ave., Jamaica Baena, L. 600 W. 140 Baker, B. H. 968 E. 167 Baker, C. M. 501 W. 120 Baldwin, A. 915 Carnegie Hall Baldwin, G. K.

29 Court, White Plains Barasch, N. Y. M. C. A., Newark Barbour, J. L. Barbour, M. L. 620 W. 116 620 W. 116 620 W. 116 Barbour, R. L. R. Hartley Barsky, E. 206 Hewes, Bklyn Mus. Nat. Hist. Barsky, G. 206 Hewes, Bklyn

411 W. 114 | Barth, E. A. Bartholomew, H. 35 Nassau 401 W. 118 Bartlett, A. Bartlett, A. C. 212 W. 85 Bassevitch, C. P. Bassler, J. J. 502 Lexington, Bklyn Battinus, P. 422 W. 115 Baumgardt, M. (Opt.) Hartley 420 W. 119 Baxter, Mrs. H. A. Bayen, C. 351 W. 27 Bayern, F. J. 1386 Prospect ave. Bayern, H. 1386 Prospect ave. Beach, J. Beard, W. C. 503 W. 121 318 W. 57 Beck, M. L. 59 Gantier, Jersey City Beck, P. M. (Opt.) Hartley Beckers, C. A. 618 Hudson, Hoboken Beckett, H. C. Hartley Woodside Beeman, R. Beere, E. F. Nyack Behl, H. 1746 Bathgate ave., c-o Pepperbloom Behr, F. 2164 La Fontaine ave. 245 ave. "A" 202 W. 86 Behrens, C. Beiderhose, J. Belisle, F. G. Hartley Belmont, H. A. 463 W. 159 419 E. 64 Bennett, A. Bennett, C. W., Jr. Bennett, M. V., 616 W. 179 Bennett, N. M. Westfield, N. J. Benz, O. 2308 Seventh ave. 50 W. 117 Berenson, S. Berg, W. 1071 Franklin ave. Bergen, H. Livingston Berger, J. 310 W. 123 Berger, S. 1578 Lexington ave.

Berndt, W. 815 Eagle ave. Bernhan, H. 25 Mt. Morris Park, W. Bernstein, L. 755 Gates, Bklyn Berson, J. 65 E. 110 Beshgetoorian, H. 467 Third ave. 511 E. 117 Beyer, E. A. 306 E. 90 3197 Perry ave. 446 W. 124 Biedermann, A. Bierach, W. Biering, W. R. Bigelow, M. 315 W. 97 Biggs, R. 600 W. 140

560 W. 161

Whittier

Berggren, A.

Berggren, H. M.

Bilhuber, P. H. 627 W. 113 Bill, S. S. Hotel St. George, Bklyn Bills, F. 391/2 Washington Sq. Binder, A. A.

Glenwood & Moore aves., Leonia Bingham, E. 65 Morningside ave.

Birkhahn, R. C.

Bisch, L. E. 768 West End ave. Bishop, I. E. Black, J. E. 35 E. 62 3133 Bway

Blair, J. F. (Opt.)

207 S. Clinton, E. Orange Blau, I. M. Blau, L. B. 132 W. 119 761 E. 156 Blau, M. 132 W. 119 Blauvelt, E. M. 36 Marble Hill ave. Blauvelt, W.
Bleil, C. J. 458 E. 185 518 W. 152 Bliss, F. W. Scarsdale Bliss, W. H. 407 W. 123 Bloom, E. (Opt.)

152 Cabinet, Newark Bloom, G. 981 Whitlock ave. Blount, I. M. 607 W. 116 Blow, G. Blue, E. Livingston 620 W. 138 Blue, J. 347 Fifth ave. Blumenthal, B. J. 127 W. 112 Blumenthal, F. 127 W. 112 Blumgarten, S. L.

1114 Madison ave. Boak, H. 456 E. 183 Bocker, C. H. 68 E. 90 Bockholdt, E. D. 441 E. 187 Boes, H. W. 896 Lake, Newark Bogert, H. Z.

141 Main, Hackensack Bohms, H. W. 617 W. 113 Boker, C., Jr. 23 W. 76 Bollerman, J. L. 450 First ave., Long Is. City Boman, J. S. 1113 Lexington ave. Boote, G. E. 99 Highland, Yonkers Booth, H. R.

182 No. Bway, Yonkers Borchard, A. 352 E. 124 Borgenicht, W. S.

5116 Fifteenth ave., Bklyn Borst, G. 556 W. 150 Bossard, W. D. K. 334 Fourth ave. Bossler, P. A. 14 Cooper, Astoria 501 W. 120 Bourn, A. O., Jr. Livingston

418 W. 118 | Buck, H. G. Bourne, M. J. 10 E. 120 Buck, O. L. 352 Park, Hackensack Bouton, G. R. 288 W. 92 Bowe, W. A. I University Pl. Budell, B. 939 Eighth ave. Buehler, J. B. 680 St. Nicholas ave. 57 Vermilyea ave. Bowen, R. L. Bullwinkel, E. J. Bunzl, J. V. Bowers, E. M. 15 W. 107 42 Bway Riverdale Boyd, M. 121 E. 72 Burall, W. T. Burchell, J. A. 33 E. 17 604 Riverside Dr. Brace, E. Brady, A. M. 2783 Bway 733 Summit ave., Westfield, N. J. 2880 Bway Burdick, A. Burgess, L. Whittier Burke, T. 2655 Bainbridge ave. Burke, W. E. 132 State, Bklyn Brady, F. L. 160 Claremont ave. Brady, J. F. 204 W. 106 Brady, K. Brady, T. F. 72 Van Siclen ave. Burnett, W. H.
23 Walker ave., White Plains 527 Fifth ave. Braislin, W. D. 556 Washington ave., Bklyn , S. O. 603 W. 139 es, W. W. 550 W. 114 Bush, A. M. Brand, S. O. 1700 Pitkin ave., Bklyn Butler, G. P., Jr. Brandes, W. W. 608 W. 113 490 Riverside Dr. Brantley, O. Butler, Mrs. H. M. 414 W. 119 Braunfeld, S. Brazer, C. W. Breisch, L. I. Byrne, M. 465 W. 138 Montclair 772 Third ave. Byrne, S. L. Montclair Cahn, D. A. 672 St. Nicholas ave. Callahan, S. A. 1133 Bway Bretschneider, W. 1621 ave. A. 178 Academy, Long Is. City Brewer, Mrs. M. D. 400 Riverside Dr. Callender, J. 80 Washington Sq. Cameron, A. 241 W. 120 Campbell, B. E. 604 W. 125 Campbell, G. C. 362 Riverside Dr. Campbell, R. W. 120 W. 86 Brickner, R. M. Bridge, S. H. Glenridge Brieant, C. L. 633 W. 115 143 W. 113 Briggs, J. Broadbent, E. 363 Edgecombe ave. Candela, R. 238 E. 106 22 Beach, Nutley, N. J. Broadfield, G. E. Park ave. Hotel Canfield, W. Brocker, J. 611 W. 127 50 Morningside Dr. Capel, H. V. 168 W. 77 122 W. 102 Brod, E. Brodsky, H. 1159 Fox 61 W. 115 Caples, E. J. 540 W. 122 Brody, A. Carpenter, L. E. Brody, A. 62 W. 92 103 Morningside ave. Carr, J. Carr, M. A. Carry, C. G. Brooks, G. 383 S. Bway, Yonkers 71 E. 130 11 W. 129 369 E. 162 Carter, A. 155 Spruce, Bloomfield Brooks, L. M. 1985 Prospect ave. Carter, O. Cary, T. Case, B. C. 95 W. 119 Brous, L. Upper Montclair Brown, A. W. 88 Morningside Dr. 46 W. 46 600 W. 122 Brown, G. 162 W. 54 147 Milton, Bklyn Brown, J. L. (Opt.) 606 W. 138 Case, H. E. Brown, M. D. Brown, Mrs. N. Cashen, A. D. Hartley New Rochelle Cashion, D. Castro, F. Catzen, B. H. 419 W. 119 101 E. 95 Brown, S. Hartley 50 W. 119, c/o F. Abelson 14 W. 101 630 W. 135 Brown, S. I. 500 W. 122 Cavanaugh, I. Brunberg, A. Harrison Upper Montclair Cazin, A.

Teachers College

47 W. 84 41 E. 33 183 W. 88 Ceresini, M.

Chalmers, M. Chamberlin, E. C.

Chappell, W. R.

122 W. 12

241 W. 139 504 W. 143

117 E. 64

Bryan, E. H.

Bryan, J. W. Bryant, W. S. Buchanan, F. D.

Chard, W. G. 969 Park ave. 345 Manhattan ave. Charles, J. Cherfetz, S 826 Kelly Hudson Heights Cherreux, G. Chickering, J. 250 Manhattan ave.
Child, M. B. Teachers College
Childs, J. G. 611 W. 112
Chong Su, S. S. Hartley
Chow, K. C.
Choy, J. K. Hartley
Christie, R. C. Hackensack
Chryssikol, G. I. 140 Nassau Chryssikol, G. J. 140 Nassau Church, E. Clancy, T. Clark, A. M. I W. 71 150 Columbus ave. 418 W. 118 416 W. 118 105 E. 22 187 Keap, Bklyn Clark, A. M. Clark, C. M. Clark, E.B. 422 W. 119 500 W. 122 134 W. 117 5 W. 125 Clark, Mrs. J. Clark, T. Clarke, I. Clemens, M. A. Cleveland, E. 524 W. 124 Cleveland, J. H.

Mc Farle II.

Mc Earle Hotel, 103 Waverly Pl. Clinton, E. 171 W. 73 Closs, Mrs. M. F. 47 Elm, Orange Cloud, C. B. 519 W. 121 519 W. 121 8 W. 76 Coe, F. Coer, B. 401 W. 118 Cohen, I. (Opt.) Cohn, M. Cohn, P. Elizabeth 431 E. 14 89 ave. A. Coit, R. T. So. Orange, N. J. 52 W. 126 Colby, D. Cole, A. 582 Penna ave., Elizabeth Cole, E. · 242 W. II Cole, J. N. Hartley Colegrove, K. E. 66 S. Portland ave., Bklyn

Coley, S. B. 132 Madison ave.

Collins, A. M.

137 Cator ave., Jersey City Colmar, D. Colucci, A. 125 W. 33 1342 Fulton Colvin, J. M. 10 S. Oxford, Bklyn Comba, J. F. X. 344 E. 19 Coningsby, E.

116 Park ave., Newark Conklin, B. F. Arlington Conklin, W. Edgewater Conlin, A. B. Conlisk, J. F. 540 W. 113 419 W. 34 611 W. 156 Connell, J. H., Jr. Connor, M. Tenafly 139 W. 98 138 W. 91 138 W. 91 Conroy, J. Considine, A. M. Considine, C. M. Convissar, H. 765 Lafayette, Bklyn Cook, F. H. 1341-55, Bklyn Cook, H. G., Jr. 153 E. 46 153 E. 46 253 W. 23 400 W. 118 Cooke, D. J. Cookingham, H. Coombe, W.

110 Eilshemius ave., Arlington

Cooper, L. J.

80 Addison ave., Rutherford Cooper, L. M. Cordner, G. F. Corrao, V. 253-74, Bklyn 370 W. 120 172 E. 89 Cothran, Mrs. C. H. 600 W. 116 Cotter, J. A.
Coulter, E. 10
Court, I. Wards Island 1019 Ogden ave. 72 W. 50 Courtney, A.

752 Warburton ave., Yonkers Cover, J. H. Cowan, J. 420 W. 121 814 Hewitt Pl. Coward, W. J. 49 Claremont ave. Cox, F. Cox, W. J. Covle, E. M. 163 W. 105 509 W. 122 532 W. 143 Craft, F. 141 W. 136 Cramer, A. 905 Trinity ave.
Crandall, H. W. 537 W. 121
Crandell, Mrs. K. 47 W. 126 Crane, A. L. Hartley Crane, Mrs. F. L. H.

223 Riverside Dr. Cranstoun, J.

80 Tonnele ave., Jersey City Criddle, I. Tarrytown

Crocker, M. C.

25 Morton Pl., Jersey City Crowe, M. Harrison Cruikshank, D. M. Hartley Cudney, L. M.

38 Guion Pl., New Rochelle Cudroff, L. 321 Crimmins ave. Cummings, B. R. 988 Simpson Cummings, L.

79 Washington St., Hoboken Cunningham, R. W. 405 W. 118 Cunningham, W. E.

13 Ravine, Yonkers

I W. 94 Curie, E. D. 214 First ave. Curry, D. Curt, W. E. 435 W. 119 218 W. 10 Curtin, K. Curtis, M. 415 W. 118 Livingston Curwen, G. B. Cutrer, J. C. Hartley Gt. Kills, S. I. 2728 Bway Dalton, C. Dalton, I. E. G. Daly, B. A. Daly, W. H. 147 W. 96 2795 Morris ave. Danforth, C. 323 Division ave., Bklyn Daniels, C. W. Woodhaven Daniels, M. H. 408 Manhattan ave. Darling, J. C. (Opt.) Ridgewood Dashew, E. T. 80 St. Nicholas ave. 316 W. 140 414 W. 118 2 W. 121 Davies, M. Davis, A. M. Davis, C. M. Davis, J. L. Mt. Vernon Davison, W. W. 1022 Curtis ave., Richmond Hill, L. I. Decker, W. 661 W. 179 Dederick, J. E. 78 First, Hackensack 511a Monroe, Bklyn Deecke, W. Deitsch, A. Delany, M. J. 21 E. 83 460 W. 147 Del Gandeo, M. W. 1812 Gleason ave.

Delson, E. L. 81 Columbia Heights, Bklyn Delury, S. G. 351 Lexington ave. De Maria, A. G. 342 E. 121 De Mott, J. W. Tenafly De Mott, J. W. Tenafly Demsey, W. H. 59 Palmetto, Bklyn De Rosa, E. D. K. 423 E. 117 Desmond, R. J. Jersey City 923 Tinton ave. De Vivo, L. De Vore, H. 35 E. 62 De Witt, L. L. 140 Herkimer, Bklyn De Zeller, M. C. 472 W. 22 De Zeller, M. P. Dibble, W. 472 W. 22 627 W. 113 Dick, T. Dicken, W. 463 W. 23 661 W. 179 Dickhuth, W. K. Elmhurst, L. I. Dickie, G. 383 Madison ave. Dickinson, F. J. Grantwood, N. J. 403 W. 115 Dickinson, J. A. Dickinson, M. E. Whittier Diehl, J. 540 W. 113 Dienstein, M. 138 E. 94 Diller, H. E. 419 W. 119

Disesa, N. D. 114 Mulberry Diskant, J. H. 1730 Washington ave. Dittmer, J. C. 286 Park Pl., Bklyn

Divine, M. M.

302 Carlton ave., Bklyn
Dixon, P. W. 1120 Amsterdam ave.
Dobbelaar, E. M. Fort Lee
Dobson, G. 606 W. 146
Dolan, J. S. 160 Fifth ave.
Dole, R. 27 W. 44
Donahue, R. T. 148 W. 141
Donnelly, Mrs. J. P. 409 W. 129
Donohue, W. R.

227 Cypress ave., Flushing

 Doran, L.
 629 Westminster Rd., Bklyn.

 Dorchester, A. H.
 389 Fifth ave.

 Doré, C.
 580 W. 161

 Dorfmann, D.
 69 W. 113

 Dorney, T. J.
 120 E. 83

 Dougherty, H. R.
 Peekskill

 Douglas, L. C.
 330 E. 176

 Douglass, B.
 452 Riverside Dr.

Downs, E. M.
140 S. First, Mt. Vernon
Dromeshauser, L.
Sta. "G" N. Y. P. O.

Druding, R. Dryer, N. K. 156 W. 106 302 Convent ave. 64 W. 82 Dryfus, J. Dubois, N. Park Hill, Yonkers Dudash, E. 446 E. 139 Duffy, F. 599 E. 132 Duffy, K. 211 W. 121 Dugro, R. T. 764 Madison ave. Duncan, J. D. Duncan, W. Dunlap, M. P. 229 W. 97 514 W. 122 401 W. 118 520 W. 114 Dunn, J. F. 472 E. 26, Paterson Dunning, H. Dunphy, J. J. 465 W. 166 Durflinger, C. W. London, Ohio Durkin, W. J.

Duryea, M. S. 519 W. 121
Dutton, E. 610 W. 111
Dykers, L.

418 Division, W. Hoboken Dzedzevic, G. 2040 Seventh ave. Eagar, R. 204 W. 82 Eames, Mrs. J. C.

270 Riverside Dr.

Earley, A. Earls, W. F. Earnshaw, M.

374 Wadsworth ave. 124 E. 28 East, A. M.

Ebeling, E. A.

56 Windsor Pl., Bklyn Eddy, L. 406 E. 17, Bklyn. Edinger, E. H.

387 Jackson ave., Jersey City Edman, M. 416 W. 122 Edmondson, V. 164 W. 64 Effron, L. 101 Monroe Effron, L.
Ehrsam, A.
Eichholz, C., Jr.
Eisele, J.
Eisenhardt, L.

101 Monroe
920 E. 174
Union, N. J.
669 Jefferson Pl.
207 W. 135 Eisenhardt, L. 207 W. 135 Eisenmann, C. 318 W. 57 Elbert, Mrs. M. E. 110 W. 111 Elbert, W., Jr.

279 Lefferts ave., Bklyn. Eldodt, J. J. 54 Morningside Dr. Ellenoff, S. 1787 Madison ave. Ellenwood, J. L. 531 W. 113 Elliott, C. L. Bway & 180 Ellis, C. H. 14 W. 100 Ellison, E. L. 342 Willis ave.

Ellsworth, E.

Hotel Van Rensslaer, 11th Elwyn, A. Mus. Nat. History Emerick, B. I. 604 W. 114 Emmons, F. 420 Clark, S. Orange Engel, B. A. Kings Park, L. I. Engelbrekt, A. C.

Enger, D. 31 Elm, New Rochelle Hotel Gotham English, L. Teachers College

Enslew, C

979 St. Marks ave., Bklyn. Erdwurm, L. 143 E. 53 Esberg, H. 129 E. 47 Eskin, L. 391 Broad, Newark Estrada, R., Jr. 40 Wall Evans, E. V. 88 Wadsworth ave. Evans, M. 306 W. 112 Exstein, M. W. 500 W. 122 Fales, H. A.

308 Schermerhorn, Bklyn Farmer, I. 1133 Park ave. Farnon, H. 514 W. 160 Farnum, H. G.

Hotel Ansonia, Bway & 73

Farrell, C. D.

84 Esterbrook ave., Rahway

N. Plainfield
537 W. 121
Fay, M. M.
Fearn, H.
Feinberg, R.
124 E. 28
Feinstein, R.
Feleky, A.
Feleky, A.
Teachers College
Teachers College
Teachers College
Teachers College
Teachers College Fellman, L. S. (Opt.) 430 W. 118 Felshin, M. 56 E. 116 Ferber, J. 45 Rutgers Ferris, D. B. Garden City Ferris, J. A.

569 Jersey ave., Jersey City Fiala, F. 2143 Gleason ave. Filsinger, A. 417 E. 68 Finck, F. E. 188 Claremont ave. Finkle, O. G. 115 W. 102 Finkle, P. 936 Sutter ave., Bklyn Finneran, T. 927 Grant ave. Fippinger, E. A.

Bronxdale & Hunt ave., Van Nest Fisher, E. 7 E. 44
Fisher, H. White Plains
Fisher, R. D.

213 Arlington ave., Jersey City Fiske, Mrs. A. T. 76 W. 86 Fiske, J. P. 76 W. 86 Fitch, N. Upper Montclair Fitz, W. M. 530 Manhattan ave.

Flandreaux, H. J.

44 Washington ave., New Rochelle Fletcher, K. 155 Audubon ave. Flint, G. Boys High School, Bklyn Follmer, C. 193 Hudson Forbes, Mrs. E.

407 Berkeley ave., Bloomfield Ford, A. G. 837 N. Chestnut Dr., Williamsbridge

Fordyce, C. Foster, E. D. Williamsbridge
Teachers College
Flushing Foster, E. D. Flushing Foster, Mrs. R. A.

157 Beech, Flushing Fox, F. Foyle, K. Frame, N. R. 24 W. 118 438 W. 116 2131 Bway

Frank, G. 84 Market St., Perth Amboy Frank, M. 318 W. 22 Frank, M. 698 Tenth ave.

Franke, M. 448 Lafayette ave., Bklyn Frankel, C. 46 W. 86 Frankel, H. G. 46 W. 86 Fraser, A. 263 Quincy, Bklyn

Gillelen, W., Jr. Gillett, W. 38 W. 50 | 547 W. 123 Frazer, F. 606 W. 122 42 W. 116 Freedman, L. 262 W. 99 Freeman, M. L. 262 W. 99 Freifeld, S. 1475 Washington ave. Frerichs, H. 418 St. Nicholas ave. Gillette, K. S. 156 Cottage ave., Mt. Vernon Gilmore, S. L. 76 W. 105 Freund, L. 115 St. Marks Pl. Girdner, A. 47 W. 71 47 W. 71 334 E. 15 Girdner, E. Friedman, A. Friend, R. 182 Claremont ave. Frommer, S. A. B. 40 W. 59 422 W. 115 8 Ludlow Gitterman, A. Gitterman, A. c/o H. S. G. S., Pleasantville, N. Y. Gittes, A. Glanzer, L. Glover, H. M. Frost, E. E. E. Orange Brooks Frost, S. 490 St. Nicholas ave. Fry, S. B. 62 Pierrepont, Bklyn Fuld, D. 168 W. 86 412-9 ave. Glück, E. 1590 Amsterdam ave. Glück, H. L. Gluck, W. H. Glynn, A. 726 E. 6 207 E. 87 109 E. 34 251 W. 111 Fuller, R. H. 149 Kearney, Perth Amboy Gold, E. Fullerton, P. 99 Madison ave. Gaffron, H., Jr. 788 Riverside Dr. Goldberg J. (Opt.) 3855 Third ave. Gahagan, A. J. 614 W. 113 Goldberger, B. Gainsborg, E. C. 112 Gordon, Perth Amboy 416 W. 122 320 W. 105 80 Edgecombe ave. Goldman, J. 400 W. 118 Gale, W. D. Goldsmith, L. 8 W. 101 Goll, B. C. 25 Pulaski, Bklyn Gallagher, P. H. 601 W. 151 Goodstein, P. Gallagher, Mrs. T. 26 Lenox ave. Gallagher, W. 529 W. 39 Gambier, L. M. 351 Lexington ave. Gordon, Mrs. E. O. 526 W. 113 874 Trinity ave. Goshen, G. Gans, L. S. Gantley, F. L. Gantly, H. 52 W. 71 417 W. 121 Gostenhofer, J. 172 Davis ave., W. New Brighton Gottesman, S. 71 E. 96 56 Beacon ave., Jersey City Goucher, F. S. 62 Cedar 420 W. 119 Gardner, C. C. Gould, A. Goulden, A. Graham, H. M. Graham, R. N. Hartley Garman, A. D. 50 Church 128 W. 117 521 W. 122 10 Wall Garman, S. Garrett, H. W., Jr. Garry, J. 86 Garry, L. S. 86 Madison 869 Elsmere Pl. Grandin, F. 116 W. 176 869 Elsmere Pl. Grantham, A. B. 106 W. 79 Gates, J. V. 154 E. 66 Teachers College Graves, F. A. St. Nicholas ave. Gausmann, K. 205 W. 106 435 W. 119 241 W. 113 527 W. 123 601 W. 113 Gay, D. Gaylord, B. L. Geis, W. H. Graves, L. C. 4 W. 129 Gray, C. Genussow, M. L. George, T. Gerig, Mrs. V. Gerischer, C., Jr. Gray, D. W. 452 Riverside Dr. 26 Bway 528 W. 123 435 W. 119 56 W. 54 Gray, J. M. Gray, T. L. 50 Pinehurst ave. 452 Riverside Dr. Green, E. 259 W. 92 510 W. 140 Germer, L. 253 W. 100 Green, G. Gerrish, F. Gerson, B. F. 15 Lexington ave. 15 E. 11 403 W. 115 Green, N. Green, R. I. 168 Harman, Bklyn Gibbon, A. 1071 St. Nicholas ave. Greenbaum, M. R. Giibert, H. 453 W. 152 1082 Anderson ave. Greenburg, D. 562 W. 113
Greene, A. S. 36 Cranberry, Bklyn
Greene, C. F. 263 Henry, Bklyn
Greenwald, M. 24 E. 93 Gilbert, M. 1115 Amsterdam ave. Gilkes, J. F. 420 Lafayette ave., Passaic

135 W. 80

Gill. D. S.

55 W. 47 Griffin, E. B. 542 W. 124 129 E. 10 Grigg, J. W. Grimes, V. Grimm, A. J. Hartley 418 W. 118 Grimm, R. J. Gross, E. 306 Bway, Paterson Gross, L. 895 Bergen ave., Jersey City Gross, P. L. 417 Riverside Dr. Grossbaum, L. 831 Hunts Point ave. Grossheim, M. K. Bayonne, N. J. 56 E. 104 Grossman, A. Grotz, G., Jr. 1 Madison ave. Grünberg, I. A. 200 W. 111 <sup>2</sup> W. 88 306 W. 14 Grunsfeld, E. A., Jr. Guiney, D. F. Gurlitz, E. H. L. 109 Clark, Bklyn. Haag, F. S. Haas, H. F. 625 W. 156 533 W. 22 Haddow, M. 70 Grove, Elmhurst Hagobian, J. S. 220 E. 36 Hague, E. F. 174 W. 89 Haines, G. 8 Van Houten Pl., Belleville Haldenstein, A. A. 321 W. 22 Hale, C. Alumni House, New Brunswick Hall, E. M. 3100 Bway Hall, G. B. 473 W. 140 423 W. 118 Hall, J. O. Hall, L. Hall, M. E. 84 Lenox ave. 357 E. 193 130 W. 57 Halmi, E. N. Halsey, W. Little Falls, N. J. Halsted, C. S. Halter, E. C. Hambidge, G. 509 W. 121 243 E. 123 3 W. 29 Livingston Hamdi, A. F. Hamilton, A., Jr. 43 W. 9 Hamilton, C. 296 Garfield, Bklyn. Hamilton, M. Rye Hamilton, P. 304 Hancock, Bklyn Hammerstein, W. 67 W. 101 Hammond, S. L. Maryland ave., Port Washington Hanaway, R. Hanington, F. 220 Audubon ave. 504 W. 112 Hanington, F. 504 W. 112 Hanks, E. 5 Jones, Jersey City Hanley, F. L. 141 W. 90 Hanley, J. 2211 Broadway Hanna, W. 103 Waverly Pl. Hannan, Mrs. A. S. 3 W. 108

Hannon, J. 510 W. 134 Hannon, J. 510 W. 134 Hanrahan, M. 393 Bement ave., West Brighton, S. I. Hansen, C. H. 49 E. 128 Harada, K. 188 Claremont ave. Hardenbergh, N. M. 64 W. 128 Harding, H. S. 95 Brandt Pl. Harris, Mrs. M. S. 605 W. 112 Harrison, E. 147 W. Fourth, Mt. Vernon Harrison, F. 147 W. Fourth, Mt. Vernon Harrison, F. R. 362 Franklin, Bloomfield Harrison, L. 145 W. 96 Harte, F. J. 25 Toledo, Elmhurst Hartley, E. J. 80 Morningside Dr. Hartman, M. 861 E. 164 Hartung, T., Jr. 1306 Fulton ave. Hartzelius, C 684 President, Bklyn Harwood, L. B. Whittier Harwood, M. 510 W. 124 225 W. 71 790 E. 181 Haskin, L. Hauptli, A., Jr. Hay, S. 418 W. 118 Hayden, P. M. Livingston Hays, T. A. Hebach, F. A. 590 E. 170 Yonkers Hecker, B. 605 Hudson, Hoboken Hedden, H. 160 W. 87 Hegeman, C. 467 W. 150 Hegeman, C. 467 W. 159 142 W. 122 Heidgerd, G. H. Heim, A. 192a S. Ninth, Bklyn Heimerdinger, M. 1361 Madison ave. Heinle, B. Convent, N. J. Heins, H., Jr. 1195 Hancock, Bklyn Helldring, J. H. 429 W. 117 Helmer, H. 163 Sixth ave., Bklyn Helmke, H. W. 329 Alexander ave. Hemphill, E. A. 110 Liberty Hendrick, P. E., Jr. 410 W. 148 519 W. 121 519 W. 121 540 W. 113 Henger, E. J., Henger, M. A. Henry, A. S. Henry, J. R. 9 Second ave. Henry, L. 9 Second ave. Henry, L. M. Hensel, S. R. 400 W. 118 3526 Boulevard, Jersey City Henson, P. P.

382 Clermont ave., Bklyn

205 W. 57

Heraeus, G.

Herenden, J. E. 207 W. 85 Herman, E. 346 W. 71 Homlet, H. 931 Amsterdam ave. Hommel, C. L. (Opt.) 420 W. 121 Hood, G. G. 1230 Amsterdam ave. Hoover, M. M. 417 W. 120 Herre, E. F. 452 Second, Bklyn Herreshoff, A. F. Hopkins, E. M. 1415 Sedgwick ave. 20 Wodland ave., Woodhaven Hertz, S. A. 160 Fifth ave. 57 E. 117 Hersman, A. Hopson, A. 210 Riverside Dr. Horowitz, M. House, N. C. Herzog, A. C. 13 Troy, Jersey City 693 Union ave. Hewson, M. A. Westfield Heyman, M. A. Houston, C. 519 Garden, Hoboken 60 E. 93 Hice, H. Hicks, Mrs. H. S. Hartley 134 E. ave., Norwalk, Conn. Howard, L. 136 Carnegie Hall Howley, C. 421 W. 34 Highee, R. P. 368 W. 117 Hoyem, O. 616 W. 113 Higgins, G. Higley, H. (Opt.) Hartley Hoyt, F. W. Hartley 9 Buckingham Rd., Bklyn Hildreth, L. J. Hartley Hubbard, B. Hill, D. 35-37 E. 62 510 W. 124 Teachers College Hudler, A. 617 W. 115 Hudson, C. F. 434 Central Pk., W. Hill, H. G. 562 W. 140 Hill, N. G. D. Hindenach, W. L. Hines, J. C. Huebner, E. 132 W. 64 100 Poplar, Jersey City Livingston Hufner, W. Hinners, F. 215 W. 23 513 E. 86 430 W. 119 Huguenin, E. Hinton, G. 247 Audubon ave. Humiston, Mrs. M. G. 12 E. 38 Hochderffer, Mrs. M. J. Jamaica, L. I. 147 W. 94 Humphreys, L. G. Hochhauser, E. 1230 Amsterdam ave. Hochschild, H. 565 West End ave. Hunt, E. A. 53 E. 132 Hodenpyl, G. H., Jr. 30 Church Hunter, H. C. Hurd, F. 123 Hobart ave., Summit 417 W. 120 Hurdman, H. O. Hoffman, G. L. 55 Davis ave. 50 Hardenbrook ave., Jamaica Hoffman, M. C. 59 E. 80 Hoffman, M. 64 W. 12 58 E. 79 Hussion, J. A. 600 W. 163 Hoffman, S. 434 Riverside Dr. Hutchinson, M. Hoffmann, A. S. 211 E. 18 Huxley, F. 21 Manhattan ave. Hofmann, A. F. Huyssoon, M. Paterson 312 W. 72 Hogan, F. J. 271 Bway Hyde, H. B. 175 Clermont Hogan, J. A. Hyman, H. 515 W. 110 Hyman, H. 220 Roebling, Bklyn Illich, L. L. 715 Tilden 232 Windsor Pl., Bklyn Hogan, T., Jr. 35 Wall Holakovsky, E. 422 E. 77 Imhoff, R. R. 282 E. 162 Holde, J. 11 Palisade ave., West Hoboken Hollander, L. 746 Fifth Irwin, R. 90 West Isaacs, F. (Opt.) 1216 Boston Rd. Isaacs, M. 235 So. Fourth, Bklyn Isang, Mrs. A. W. 207 W. 80 Hollander, R. 746 Fifth Hollbrook, C. 175 Claremont ave. Holloway, E. Whittier

727 Tinton ave.

1473 Fifth ave.

160 W. 127 345 W. 70 343 E. 17 230 W. 99 Ising, C. E.

Jacobi, E.

Jacobsen, H.

Jackson, M.

Jacobsen, Mrs. A.

Jacob, G. 132 Grove, Jamaica

207 W. 80 103 Waverly Pl.

> 535 W. 163 163 E. 53

215 W. 105

Holstein, D.

Holstein, S.

Holtzoff, Z. Holz, M. B.

Holzschuh, W.

Holzwasser, M.

Jacobsen, I. 2153 Richmond Ter., Kearney, L. I. Port Richmond Kearton, J. G.

Jacobsen, M.

574 Ovington ave., Bklyn Jacobson, L. 104 W. 115 Jacoby, J. H. 285 Central Park, W.

Jaeger, L. C.

140 Ridgewood ave., Newark Jagow, P. 231 Ryerson, Bklyn Jalien, J. J. 365 W. 118 James, F. 470 W. 157 Jannaris, M. 405 W. 118 Janney, S., Jr. 102 W. 93 Jarvis, K. A. 139 W. 97 Jewett, F. W. 14 Morningside ave. Jex, A. 110 Morningside Dr. Jimenis, E. A. 268 W. 72 Johnson, G. M. 233 Macon, Bklyn Johnson, L. I. Teachers College Johnson, S. G.

43 N. Fullerton ave., Montclair

Johnston, A. S.

Johnston, F. R. Mt. Vernon
Johnston, F. R. 575 W. 159
Johnston, L. 46 W. 84
Jonas, S. 515 Cathedral Pkway
Jones, E. S. 202 W. 133
Jones, H. Oradell, N. J.
Jones, K. F. H. 47 South, Newark
Jones, M. B. 301 W. 109
Jones, P. F. Livingston
Jones, S. M. 418 W. 118
Jordan, M. S. 507 W. 121
Jory, F. Grantwood
Joseph, B. 47 W. 86
Joseph, P. I. (Opt.) 50 Suffolk
Joseph, S. 106 Brooklyn ave. Bklyn

106 Brooklyn ave., Bklyn
Joyce, A. 302 W. 121
Joyce, E. 161 W. 80
Judd, M. 137 W. 69
Judge, A. G. 140 W. 69
Junghaus, B. 871 St. Nicholas ave.
Kahn, H. I. 223 W. 113
Kaiser, F. 3810 Bway
Kamenetzky, E. L.

397 Springfield ave., Newark
Kaplan, J. 326 E. 81
Kastin, M. 937 Tiffany
Kasurin, P. 540 W. 165
Katz, J. 535 Manhattan ave.
Kaye, F. G. 414 W. 120
Keady, G. C. 44 Court, Bklyn

Kearney, L. I.

Kearton, J. G.

Keeler, L., Jr.

Keil, G.

Keim, E. M.

Keller, A. 876 St. Nicholas ave.

Kelley, D.

Kelly, H. A.

Kelly, H. A.

Kelly, M. A.

Kemp, E.

366 Webster ave., Jersey City Kempner, D. W. 343 W. 87 Kempton, R.

138 Morningside ave., Yonkers Kempvanee, J. C. Hartley Kenlaw, E. 210 W. 63 Kennedy, M.

Kennedy, P. A.

Kennedy, F. A.

137 Garfield Pl., Bklyn
Kenney, E. J.
655 E. 164
Kenny, E.
Chappaqua
Kent, R. B. 616 Carlton ave., Bklyn
Keogh, K. A.
2117 Fifth ave.
Ker, D.
430 W. 119
Kern, M.
683 West End ave.
Kerr, D. R.
2822 ave K., Bklyn
Kerr, J. C. (Opt.)

51 Clinton ave., Clifton, N. J. Kesser, J. 421 E. 5 Ketchum, B. Nyack Kibitz, G. 800 E. 175 Kiefer, L., Jr. 1268 First ave. King, C. 318 W. 57 King, H. B. 618 W. 113 King, H. L. King, M. E. 559 W. 164 340 W. 85 King, V. K. New Rochelle King, W. E. King, W. H., Jr. 601 W, 164 523 W. 157 Kingsley, W. 346 Bway Kingston, M.

35 Union ave., Mt. Vernon Kinnan, M. 540 W. 122 Kinney, M. 50 W. 54 Kinsman, R. 348 W. 87 Kipnis, W. S., Jr. (Opt.) 35 Grove Kirkman, L. R. 129 E. 76 Kirst, J. W.

535 Manhattan ave.

414 W. 120
44 Court, Bklyn

Kiser, F. G.

Kiser, F. G.

Kiser, F. G.

Bronxville

Klauber, Mrs. E.

2 W. 86

Kleban, M. 1800 Seventh ave. Klein, C. 2 W. 86 Klein, H. C. 146 W. 168 Klenke, A. 5 Faneuil Pl., New Rochelle Kline, E. 434 Central Park., W. Klots, Mrs. G. Pelham Knoblock, F. 2702 Bailey ave. Knolt, Mrs. H. W. 445 Riverside Dr. Lawrence, L. I. Knopf, A. A. Knopf, S. Lawrence, L. I. Knopf, S. H. 1416 Stebbins ave. Knowles, K. 190 Claremont ave. Knowlton, E. 284 Kingston ave., Bklyn Knox, C. G. 828 St. Nicholas ave. Knox, M. 606 W. 122 Knox, W. J., Jr. 511 W. 113 Koch, F. 285 Central Park, W. 398 E. 152 Koenig, J., Jr. Kohnstamm, F. 320 Central Park, W. Kohnstamm, H. 158 W. 118 Kompff, W. Grand Central Ter. Kondo, G. 622 W. 113 Koshland, M. Madison ave. & 56 Koster, H., Jr. 233 W. 135 Kraft, N. 3 W. 112 Kreichsheimer, I. (Opt.) 198 High, Perth Amboy Kremer, F. 85 Liberty Kremen, M. 25 E. 105 Krolnan, W. J.
49 Fulton ave., Astoria

49 Fulton ave., Astoria Kronman, S. 1205 Tinton ave. Krulewitch, M. L. 422 W. 122 Kuchler, F. J. 784 Macon, Bklyn Kuemmel, H., Jr. 743 Kelly Kugelman, M. 241 S. 3, Bklyn von Kummer, F.

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 11 & Lamont ave., Elmhurst

 Lackey, W. T.
 540 W. 113

 La Ganke, F. M.
 509 W. 121

 Lakeman, H. M. 552 Riverside Dr.
 Lakeman, K.

 Lambert, W.
 305 Lafayette, Bklyn

 Lamport, E.
 600 W. 165

 Lamport, H.
 81 W. 103

 Landone, R.
 575 W. 159

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Lawton, E. B.
Country School, Riverdale
Leathers, Mrs. H.

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Lesher, A. L., Jr. Rye
Leslie, W. H. 2768 Bway
Lesnick, H. S. (Opt.) 430 W. 118 Levien, A. 456 E. 141 67 E. 97 9 E. Bway Levin, B. Levy, F. Levy, G. Lew, F. H. 508 W. 171 416 W. 118 Lewinson, L. 285 St. Nicholas ave. Lewis, E. 19 E. 94 Lewis, E. L. 44 Essex, Bklyn Lichtenstein, H. 138 W. 85 610 W. 116 610 W. 116 Liddell, A. F. Liddell, M. R. Liebig, O. E.

t ave., Elmhurst
540 W. 113
509 W. 121
Liedtke, J. F. 154 S. 10, Nevark
Liesenfeld, L. 419 Sixth
Lincoln, A. 200 Fifth ave.
Lindemer, G. F. (Opt.) 400 W. 118
Lindt, Mrs. N. 401 W. 118
Lindt, Mrs. N. 606 W. 115
81 W. 103
575 W. 159
Linn, H. 347 Central Park, W.

781 Elsmere Pl. Little, J., Jr. Livingston, A.

436 Ellison, Paterson Livingston, L. 5 E. 53 500 Park ave. Lobeiager, C. Lobsenz, M. Loew, A. E. Logan, C. T., Jr. Lohmann, E. E. 233 W. 122 307 W. 79 Palisade 641 E. 169 Long, R. U. Livingston Long, T. R. 351 W. 57 Lorch, A. 1649 Amsterdam ave. 58 Worth Lorenz, L. Lostowski, L. J.

157 Metropolitan, Bklyn

24 Alexander ave., Yonkers Love J. W., Jr. Hartley Lovell, R. E.

64 Poplar ave., Hackensack 519 W. 147 429 W. 117 607 W. 116 Lowenberg, R. Lucas, A. J. Lucey, L. 157 W. 72 528 W. 139 Luck, C. Ludwig, A. Lundelius, A.

37 Hudson Terrace, Tarrytown Luria, M. A. 103 Cook, Bklyn Lussier, I. 5 W. 104 Lussier, I. Luther, E. M. 481 Sixth, Bklyn Lyford, C. A. Lykes, M. E. Lynas, A. O. Whittier 509 W. 121 505 W. 122 Lynch, L. O.

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McComish, J. J. 138 W. 103 McCormick, M. E. H.

1230 Amsterdam ave. McDermott, G. 507 W. 112 McDermott, M. 507 W. 112 McFarland, A. 606 W. 138 McFarlane, J. 88 Morningside Dr. McGovern, W. P.

694 Park Pl., Bklyn McGrath, E. V. 451 E. 142
McHugh, M. 214 W. 114
McIntyre, D. 530 Riverside Dr.
McIntyre, F. A.

McKeever, J. A. Nicholas ave. 310 W. 46 McKenna, M. F.

2050 Washington ave. McKinnley, R. 1927 Madison ave. McKnight, T. L. Central Valley McLaughlin, J. H.

538 Sixth ave., Astoria, L. I. McLean, M. 622 W. 137

McLoughlin, W. G.

558 Jersey ave., Jersey City McMahon, J. F. Hartley McNeill, M. F. 20 Morningside ave. Mabie, H. D.

225 Union ave., Peekskill Mac Carthy, I. 410 Clinton, Bklyn Mac Connell, M. H. 58 W. 57 Mac Coull, N., Jr. 537 W. 121 Mac Donald, J. 60 E. 127

Mac Farland, F. 419 W. 119

Machol, A. 1153 Boston Rd.

Mack, D. 547 West End ave.

Mack, E. L. 250 W. 88

Mackenzie R 604 W. 114 Mackenzie, R. 604 W. 114 Mackintosh, E. M.
633 Putnam ave., Bklyn

Mac Lachlan, H. J.

87 N. Bway, Yonkers Maclean, C. 231 Ryerson, Bklyn Mac Lean, L. A.

318 Seventy-fourth, Bklyn

Mac Lean, M. A.
318 Seventy-fourth, Bklyn
Macri, E.
188 W. 137
Maguire, M.
248 W. 12 Mahoney, J. Hartley Mahoney, M. B.

330 W. 95 150 E. 78 309 Bway Maier, J. McClelland, M. S. Passaic Malik, A. McClelland, W. F. 1315 Chisholm McClure, H. 1987 Morris ave. Mallett, D. S. Mallaby, K. L. 202 W. 79 153 E. 86

Merkle, E. P.

207 E. 16

Mallory, V. S. New Durham, N. J. | Maloubier, A. Mance, G. B. (Opt.) 132 W. 96 139 Ash, Flushing, L. I. Mandeville, E. 50 Pineapple, Bklyn de la Mar, E. 475 W. 159 Marble, W. H. 415 W. 118 475 W. 159 415 W. 118 Mardorf, L. Margold, C. 150 W. 98 248 Snediker ave., Bklyn Marie, L. L. I. College Hospital, Bklyn 47 W. 88 523 W. 122 Marks, L. Martin, A. Martin, A. E. 60 Summit ave., Plainfield Martin, C. J. 208 W. 184 Martin, H. 448 Greene ave., Bklyn 416 W. 122 521 W. 111 Martin, S. Martyn, B. Mason, H. Mast, J. 44 E. 23 Mast, J. 140 Halsey, Bklyn Mathes, F. P. 166 W. 129 Mathes, F. P. 166 W. 129 Mathews, M. E. 1 Convent ave. Matshak, H. 1345 Fifty-first, Bklyn Matson, A. N. 1249 Pacific, Bklyn Mattes, M. H. 742 Lexington ave. Matthews, Mrs. V. J. Hood Wright Hospital Maurer, W. R. 158 W. 99 519 W. 121 500 W. 121 May, L. Mayer, M. L. Maynard, M. 430 George, New Haven, Conn. 2 W. 121 Mayo, G. B. 414 W. 118 Meacham, L. A. Mead, F. R. Hotel St. Andrew, 72 & Bway Meade, E. 1356 Lexington ave. Meaney, J. 220 Bway Mears, B. B. 972 Kelly 309 W. 99 Meier, J. Meierhof, H. L. 1140 Madison ave. Meisner, G. Meister, L. G. 985 Simpson 1224 Park ave. Mekin, M. 218 W. 140 Melly, A. J. Wilson Park, N. Tarrytown Melvin, M. H. 318 S. Bway, Yonkers Mendell, H. 646 Faile Mendes, A. P. 106 Central Pk., W.

Merington, R.

1408 Bushwick ave., Bklyn

Merrihew, J. E. Merrill, M. A. 211 W. 121 25 Elm, Westfield, N. J. Merrill, S. C. 2880 Bway Merz, C. (Opt.) 428 W. 121 Meyer, C. G. 62 William Meyer, M. 11 Euclid ave., Summit Meyer, V. E. Coytesville, N. J. Meyers, J. 262 E. Bway 3440 Bway Mifflin, G. Miller, A. 504 W. 135 Miller, E. 1642 Anthony ave. Miller, H. Miller, H. W. 1037 Jackson ave. 558 W. 113 Miller, J. 1405 Fifth ave. Miller, J. 21-17 ave., Newark Miller, L. 2 E. 115 72 W. 124 230 W. 107 486 W. 136 Miller, M. C. Miller, R. F. Miller, W. D. Miltenberger, W. 334 E. 154 185 W. 135 Milward, D. (Opt.) Mitchell, N. 315 Stanhope, Bklyn Mittag, E. 530 E. 175 Molloy, C. 262 W. 123 Moloney, H. 219 W. 127 Monell, L. M. 332 W. 56 Monté, F. 217 Bainbridge, Bklyn Moore, E. C. 169 Sickles ave., New Rochelle Moore, J. 31 Lincoln, Astoria Morewood, M. 135 Westfield ave., Elizabeth Morgan, L. 50 Jefferson ave., Jersey City Morgan, Mrs. M. H. 611 W. 127 Morgan, T. Moritz, C. C. 611 W. 127 607 W. 116 Moro, G., 192 Park Row Morrill, R. 2170 Bway Morris, F. 1390 Clinton ave. Morris, V. C. 36 W. 37 Morrison, A. 20 E. 49 Morse, Mrs. J. S. Whittier Moses, H. 1626 Amsterdam ave. Moses, M. M. 605 W. 141 Mouquin, L. H. F. 273 West End ave. Mozee, B. B. 1144 Clay ave. Mozee, G. G. 1144 Clay ave. Mucke, D. F. 300 E. 123 Mozee, G. G. Mucke, D. F. Mucklestone, M. 300 E. 123 Muehleck, L. E. 115 Oak, Hoboken

Muehlenthal, P. H.

695 St. Nicholas ave. Mueser, E. 3260 Hull ave. Mühlhaüser, E. 124 E. 91 Müller, A. 88 Morningside Dr.
Mullin, D. 1230 Amsterdam ave.
Munn, A. B., Jr. Montclair, N. J.
Munroe, S. H. 414 W. 120 Munson, H. M.

119 & Amsterdam ave. Munson, M. 106 Morningside Dr. Murphy, D. 725 Home Murphy, E. 316 Lexington ave.
Murray, A. M. 100 William
Murray, V. J. 1190 Madison ave.
Naigeli, K. 216 W. 122

Nammack, E. F.

90 Morningside Dr. Nankivel, Mrs. C. M. 316 W. 102 Nassauer, S. 57 E. 86 Nation, N. E. 509 W. 122 Neacy, P. C. 601 W. 113 Neer, I. 245 Bway, Paterson 57 E. 86 509 W. 122 601 W. 113

Neilson, W.

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Hutton Park, W. Orange Newman, C. 958 Prospect ave. Newman, D. 147 Van Buren, Bklyn Newman, F. W. Far Rockaway Newman, J. W. Far Rockaway Newsom, H. A. Nichols, W. M. Nicoll, W. L. Hartley White Plains 126 E. 34 529 W. 111 666 Dawson Nielsen, C. Nielsen, L. Nimmons, J. E. 120 W. 82 Noël, A. L. 18 Washington Sq., N. Norek, A. 1544 Union, Bklyn Normandeau, H. E. Elmhurst, L. I. Normile, M. 4260 Bway Norris, J. E. 530 Riverside Dr. Novak, F. L.

Nutty, H. 314 So. Park, Elizabeth Nyland, F. C. 627 W. 113 Oborne, W. 295 Amherst ave., Jamaica O'Brien, M. 2781 Bainbridge ave. O'Brien, W. S.
Box 24, Glenville, Conn.

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100 Morningside Dr.

O'Keefe, Emily A.

100 Morningside Dr. 111 W. 13 431 W. 121 Olcott, E. B. Oller, S. L. Onativia, T. L. O'Neale, J. S. O'Neil, M. 116 E. 19 600 W. 114 1 W. 64 153 W. 85 Oppenheimer, A. R. Oppenheimer, B. Oppenheimer, F. S. 204 W. 137

285 Central Park, W. O'Reilly, W. T.

8 Mt. Morris Park, W. Orr, E. J. 60 W. 13
Ort, E. V. 76 Morningside Dr.
Ort, M. C. 76 Morningside Dr.
Osborn, M. L. Jamesburg
Osborne, M. H. 245 W. 104
Osgood, W. P. 327 Central Pk., W.
von der Osten, A. L.

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Pachinsky, H. Packer, E. L. Fort Lee Paddock, E. H., Jr. Paetzold, A. Paetzold, C. L. 149 W. 72 207 W. 135 207 W. 135 Page, W. E. Paine, M. D. Hartley 200 W. 70 557 W. 144 15 William Palmer, A. F. Palmer, A. W. Palmer, B. M. 605 W. 181 Palmer, L. L. Pápai, M. Livingston 122 W. 109

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Patterson, E. 161 Bellevue ave.,	Pullen M 22 Prospect Pl Rklyn
Upper Montclair	Pullen, M. 33 Prospect Pl., Bklyn Pullman, W. S. 1019 So. Boulevard
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Payne, G. A.	24 Manhattan ave.
251 Nott ave., L. I. City	Purdue, M. J. East Orange
Payne, O. S. 18 E. 28 Paynter, R. H.	Purdy, H. B. 160 Claremont ave.
	Purdy, R. J.
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Peare, H.	766 E. 26, Paterson
TTO Colioni ave New Rochelle	
Pearson, H. 201 W. 117 Pearson, R. 287 E. 203 Penfield, C. 417 W. 121 Pentlarge, G. E. Orange Perlstein, P. 976 Simpson Perporto C. A. (Opt.) 420 W. 121	Queal, L. M.       509 W. 122         Quiney, D. F.       306 W. 14         Quinn, L.       3089 Brway         Rabinowitz, H. R.       60 Canal
Pearson R 287 F 202	Ouine I 2080 Resign
Danfald C	Quinn, L. Rabinowitz, H. R. 3089 Bway 60 Canal
Penjieta, C. 41/ W. 121	
Pentiarge, G. E. Orange	Kavinowitz, I. 210 Henry
Perlstein, P. 970 Simpson	Rabinowitz, I. 210 Henry Rabinowitz, I. 121 W. 137
	Radcliffe, A. L. 501 W. 120
Perry, R. 14 W. 107	
Person, C. 530 W. 114	Rade, M. 70 Morningside Dr. Ragland, E. 529 W. III
Petchtle, C. B., 135 Hamilton Pl.	Ragland, E. 520 W. III
Peters, M. K. Whittier	Raisch, W. L. 420 W. 118
Pettigrew, D.	Ralhé R 501 W 122
41 Bloomfield ave., Paterson	Ragland, E. 529 W. 111 Raisch, W. L. 420 W. 118 Ralbé, R. 504 W. 122 Ramsey, E. A. 411 Ninth, Bklyn
Pfeffer, C. 203 E. 89	Randall, B. 614 W. 113
Pfister, F. 704 E. 175	Randall, E.
Phelps, Mrs. B. E. 316 W. 94	19 Post Rd., White Plains
Dhillion E C I In and W 51	
Phillips, E. S. J., Jr. 335 W. 71 Phillips, W. J. S. 335 W. 71 Pillsbury, M. E. 460 E. 145	Raoux, M. L. 1105 Amsterdam ave.
Phillips, W. J. S. 335 W. 71 Pillsbury, M. E. 460 E. 145	Rappenecker, M.
Pilisoury, M. E. 400 E. 145	17 Franklin ave., New Brighton
Pisciotta, I. 337 E. 146	Rau, H. 319 W. 108
Piza, J. S. 161 W. 75	Raub, M. 326 E. 28
Planas, Mrs. A. B. 202 W. 86	Raub, M. 319 W. 108 Raub, M. 326 E. 28 Rauch, W. 13 E. 9
Planta, M.	Rauer, K. G. State Highway Dpt.,
153 So. Third ave., Mt. Vernon Platt, J. H. Hartley Pollack, L. 50 E. 87	White Plains
Platt, J. H. Hartley	Read, P. 1505 Albermarle Rd.
Pollack, L. 50 E. 87	Read, S. N. 200 Hicks, Bklyn
Pollock, A.	Read, S. N. 200 Hicks, Bklyn Redman, E. F. 1131 Park ave.
515 Chestnut, Richmond Hill, L. I.	Redmond, K. L.
Polson, B. 100 Hamilton Pl. Pommerer, M. Scarsdale Popper, C. (Opt.) 763 Beck	613 Carlton ave., Bklvn
Pommerer M. Scarsdale	Reese, C. H. 478 W. 145 Reid, J. B. 533 W. 160 Reidy, K. L. 169 E. 90
Popper C. (Ont) 762 Beck	Roid I B 522 W 160
Porter, R. B. 1100 Amsterdam ave.	Reidy K I 160 F 00
Powell, Mrs. A. W.	Reif, J.
Pratt F A (Opt) 547 W 122	426 Highland ave., Mt. Vernon
Pratt, E. A. (Opt.) 547 W. 123 Pratt, M. B. 527 W. 121	Reinke, B. 10 Gouverneur Pl.
Pratt, M. B. 527 W. 121 Prentiss, M. 108 Pierrepont, Bklyn	Reinschmidt, E. C.
Price A 100 Flerrepont, BRIN	
Price, A. 270 E. 162 Price, A. B. 165 Bway Price, E. D. 603 W. 139 Price, Z. C. 606 W. 116	2426 Morris ave.
Price, A. B. 165 Bway	Reiser, C. W. 2119 Arthur ave.
Price, E. D. 603 W. 139	Reynolds, A. 15 Claremont ave.
Price, Z. C. 606 W. 116	Reynolds, B. 526 W. 114

12 E. 85 | Rohrs, G. C. Reynolds, E. J. Reynolds, H. 225 Fifth ave. Rhinehart, A. E. 429 W. 24 Rice, H. S. 416 W. 122 Rice, J. Ansonia Hotel, Bway & 73 Rice, M.

Ansonia Hotel, Bway & 73 Whittier Rich, G. Richards, H. 165 W. 97 Richman, A. M.

250 Manhattan ave. Rider, F. 299 Varick, Jersey City Riesenberger, F. 237 E. 104 Riis, E.

426 Richmond, Richmond Hill Riker, C. L.
Riley, J. B., Jr.
Rimbault, E. L.
636 W. 138
419 W. 118

714 Amsterdam ave. Rinderman, B. 1554 Minford Pl. Rinderman, H. 1031 So. Boulevard Riordan, R. J.

812 Sterling Pl., Bklyn Ripperger, S. R. 616 Madison ave.
Risch, O. C. (Opt.) 420 W. 121
Risley, W. L. Hartley
Ritter, L. J. 756 Jennings
Roahtree, J. E. 407 W. 123
Robbins I 407 W. 123 1 E. 111 Robbins, J. Robbins, Mrs. M.

226 Elderwood ave., Pelham

Roberts, Mrs. H. W.

431 Hillside ave., Westfield, N. J. Roberts, M. E. C. 306 W. 138 Robertson, I. 712-14 ave., Paterson Robinson, A. C. 3750 Bway. Robinson, D. P. 70 W. 164 Robinson, H. C.

52 Park ave., New Rochelle Robinson, Mrs. J. H. 567 W. 113 Robinson, M. 620 W. 182 Robinson, M. H. 549 Riverside Dr.

Rockman, A. S.

199 Columbia, Bklyn Roderick, O. M. Hartley 35 Charles 28 MacDougal Rodman, H. Roemer, E. Roestel, W. 41 Washington ave. New Rochelle

601 W. 144 20 W. 184 518 W. 150 Rogers, H. Rogers, M. Rogers, V. M. 311 W. 137 Rogowski, B.

523 W. 141 Romanoff, M. Rome, S. J. 9 E. 116 228 E. Second 752 E. 226 Romeo, D. Romer, Mrs. J. B. 501 W. 120 Rompel, F. Roney, J. L. 526 W. 114 477 Hudson Root, G. M.

248 Jefferson ave., Bklyn J. R. 614 W. 113 Root, W. R. 614 W. 113 Rosborg, E. B. 486 Fourth, Bklyn Rosenbard, J. 484 E. 141 Rosenberg, D. 203 W. 111 Rosenberger, M. 601 W. 113 Rosenkrans, J.

826 Hudson, Hoboken

Rosenkrans, M. E. 826 Hudson, Hoboken Rosenthal, H. M. 178 Floyd, Bklyn 400 W. 118 695 E. 139 55 W. 92 Ross, A. Ross, G. C. Rothschild, C. 49 W. 72 Rothschild, K. Rothschild, L. L. Rovillain, E. E. 158 W. 136

Rudd, J. H. 119 W. 81 Russ, P. W. Russell, G. P. Russell, H. 903 Prospect ave. 25 W. 65 Dyre ave. Russell, L. Hotel Buckingham Russeu, L.
Ryan, W. G. 308 W. 114
Sabel, M. 605 W. 111
Sack, T. Engle, Highwood, N. J.
44 W. 115
W. 80 Sage, E. W. 305 W. 80 Salan, J. 405 Bradford, Bklyn Salkeld, K. 575 W. 172 Salmon, R. 1 W. 30 Sampter, J. Samuels, A. H. 240 E. 105 301 W. 108 Samuels, D. 1740 Madison ave. Samuels, M. M. 301 W. 108 Samworth, R. 567 E. 28, Paterson Sandbach, M. Sandberg, G. 138 W. 104 944 Fulton, Bklyn Sarachek, J. 233 Monroe Saunders, M. H.

127 Arlington ave., Jersey City Savacool, E. 476 Fifth ave. Scardaccione, A. A. 20 W. 61 Schachtel, H. 911 Summit ave. Schaeffer, M. L. (Opt.) 547 W. 123 Schapiro, J. M. 170 W. 136

169 W. 98

117 E. 109

57 W. 53 353 W. 85

Whittier

70 Perry

Hartley

43 Henry

Simpson, F. A. 260 Fiftieth, Bklyn

141 Hillside ave., Newark

Simpson, W. M.

Schapiro, Mrs. J. Severy, C. H. 600 W. 133 I Rollins Pl., Yonkers Sewing, R. 134 Post Rd., White Plains Schattan, M. 1761 Madison ave. Sexton, G. Scheindlinger, M. 772 Forest ave. Scheiner, J. M. 770 Linden, Bklyn Schellenberg, H. 431 W. 121 Shalleck, J. Shanahan, J. A. 152 Sixty-eighth, Bklyn 314 Graham ave., Bklyn 324 W. 71 715 W. 180 Schermall, V. Shannon, D. 75 Washington, Hoboken Shapiro, A. J. Schick, R. E. 92 Morningside ave. Shapiro, N. W. Schiff, Mrs. B. Sharp, C. 72 W. 45, Bayonne 251 W. 92 Schillinger, H. C. Sharpe, A. D. Shaw, J. M. Shear, S. A. 1104 Lexington ave. Schladitz, J. W. 1910 Morris ave. 1060 Findlay ave. Schlev. M. Shearer, H. H. 24 W. 54 Schloss, H. Hotel Majestic, 72 177 St. Marks ave., Bklyn Shears, R. M. 203 W. 103 Sheib, Mrs. L. W. 420 W. 118 203 W. 103 420 W. 118 21 W. 54 Schlottman, G. 627 W. 113 Schmalhausen, J. 1069 Boston Rd. Schmidt, C.
31 N. Bleecker, Mt. Vernon Sheldon, B. S. 200 Waverly Pl. Sheridan, J. A. Hotel Belleclaire, Sheridan, M. 67 Prospect Pl. Schmoll, R. Sheridan, V. 77 & Bway 67 Prospect Pl. Schneider E. T. Sherry, G. 1026 Garden, Hoboken 395 Warburton ave., Yonkers Schnitzer, L. J. 11 Bway 132 W. 16 Sherwin, L. F. Schrader, E. H. Shevits, F. 502 W. 151
Shiel, A. L. 27 Grace Court, Bklyn
Shinn, C. 408 W. 130
Shipley, E. 453 W. 152 Schreiber, P. 103 Oak, Bklyn Schroeder, E. M. 161 Henry, Bklyn Schtein, M. 850 Fairmont Pl. Schubert, C. Schubert, D. 32 Union Sq. Shorr, L. 290-9, Bklyn 30 Church Shostac, I. Shoup, Mrs. W. Schubert, Q. 120 Riverside Dr. Thirteenth ave. & 86, Bklyn Keyport 607 W. 116 538 W. 113 Shreve, A. R. Shrive, L. W. 137 W. 119 Schulhof, O. Schwab, G. Manhattan Co., 40 Wall Shulman, G. A. Schwartz, A. Schwartz, H. H. 79 W. 124 Shultz, B. E. 157 W. 57 172 W. 79 414 W. 120 64 E. 91 Sidenberg, C. 375 West End ave. Siegel, B. Schweickhart, G. T. (Opt.) Siegrist, M. 430 W. 118 Silberberg, B. C. 723 E. 160 Schweis, E. M. 124 W. 109 Silver, M. Silverman, F. 309 Columbus ave. Scott, M. 4260 Bway Seadler, M. B. 416 W. 122 Seidel, J. P. 949 Columbus ave. Seidl, P. 24 E. 99 Silverman, H. 1578 Lexington ave. Silverstein, A. 320 Convent ave. 320 Convent ave. Silverstein, J. Selby, N. Silverstein, T. 320 Convent ave. 228 Prospect ave., Mt. Vernon Simon, I. Seldon, B. F. Riverdale Simonds, F. M., Jr. 31 Colden ave., Flushing Selfridge, N. Selig, J. W. (Opt.) Seltzer, M. 501 W. 120 400 W. 118 Simpson, C. 87 Hamilton Pl. Simpson, C. R. 220 Bway

219 Henry

97 Second ave.

6902 Fifteenth ave., Bklyn

Sendach, J.

Serra, F.

Stapley, Mrs. M.

Simson, L. 20 E. 93 Singer, C. S. 2039 Bway Singleton, C. G. 841 Willow ave., Hoboken Skarvan, S. 550 W. 114 Slater, W. Ossining 127 E. 36 416 W. 122 501 W. 120 Sloan, M. E. Sloan, M. J. Sloane, S. G. Small, W. (Opt.) Hartley Smedile, C. 214 First ave. Smeeton, M. A. 423 Clermont ave., Bklyn Smith, A. 519 W. 121 Smith, A. B. 3135 Bway 251 W. 127 Smith, A. L. 251 W. 127 Smith, G. 90 Morningside Dr. 344 E. 123 344 E. 123 349 W. 122 Smith, J. A. Smith, J. J. Smith, Mrs. M. C. Hartley 440 Riverside Dr. Smith, M. E. Glen Ridge Smith, M. G. 251 W. 127 Whittier Smith, P. H. Whittier Smith, R. 102 Park Pl., Bklyn Smith, R. J. 655 E. 164 Snare, F., Jr. 627 W. 133 Sobbott, P. 99 Elliott Pl., Rutherford Sokolsky, G. E. 663 Tinton ave. Solender, S. S. Pleasantville, N. Y. Somerville, R. 477 Hudson Soper, D. 11 E. 24 Sostman, H. 88 Poplar, Jersey City Southwick, C. T. 45 W. 34 Spangenberg, F. A. 345 Fifth ave. Spanier, S. 252 Wythe, Bklyn

Speece, H. E. Speece, H. E.

14 S. 10 ave., Mt. Vernon
Spence, P.

Spence, W. J.

Sperling, E. M.

215 W. 98
Spettle, L.

259 Eleventh ave., Astoria
Spier, P. L.

209 Dyckman
Spooner, R. N.

Spurny, E.

802 Second ave. Astoria

802 Second ave., Astoria 541 W. 124 Squires, L. W. Stack, R. 230 W. 76 Stanwood, L. 523 W. 121 Stansfield, M. 53 W. 104 Stamwood, L. Stanton, B. 757 Quincy, Bklyn

Starkweather, E. R. 30 Oakland ave., Bloomfield Starrett, E. Stebbins, C. A. 788 E. 176 620 W. 122 Steele, M. Passaic Stein, A. J. 771 Madison ave. Steinbeck, F. J. 1710 Filmore Steinheimer, L. E. 240 W. 132 Steinthal, J. R. 123 E. 91 Stern, C. H. 18 E. 93 Stern, S. 42 W. 120 13 E. 60 Sternbach, Mrs. M. Stewart, H. H.

33 W. 67

14 S. 10 ave., Mt. Vernon Stewart, J. 634 W. 135 Stiebel, M. J. F. Stier, J. F. 251 W. 92 117 W. 58 414 W. 120 Stoddard, A. S. Stoff, C. G. 22 Mt. Morris Pk., W. Stohldreier, W. C.

1785 Mt. Hope ave. Stone, B. 1128 Bedford ave., Bklyn Stone, G. A. Stone, R. H. 3305 Bway Hartley Storms, E. 519 W. 121 

 Storms, E.
 815 W. 179

 Stowell, W. A. 140 Kent, Trenton

 Strahan, R. T.
 60 Wall

 Strauch, A. T., Jr.
 25 W. 94

 Straus, A. P.

448 St. Nicholas ave. Strauss, H. 129 E. 123 Strohmeyer, H. A., Jr. 613 W. 113 Strohoefer, F. K.

813 ave. C, Bayonne Strohoefer, H.

813 ave C, Bayonne Strout, C. A. (Opt.) 547 W. 123 Strunz, G. Stuart, J. 27 Livingston 275 West End ave. Sulanchek, S. 317 E. 19 Sullivan, A. 422 W. 115 Sullivan, A. 422 W. 115 Sulzberger, A. H.

Sunderland, B. 2698 Creston ave. Sutherland, W. J., Jr. 57 E. 127 Suthen, J. S., Jr. 311 W. 72 Swainson, A. E. 519 W. 121 Swiney, C. M. 570 W. 182 Sworacki, F. J. 14 Sherman, Bklyn Symonds, E. L. Symonds, E. L. 770 St. Nicholas ave.

Symonds, R.
Seward ave., Port Jervis
Cold Spring Torrance, Mrs. F. C. Nepperhan Heights, Yonkers Torres, A. 524 W. 123 Taplin, E. G. Livingston Townsend, L. M. Hartley Tarler, I. C. Traube, R. 1226 Boston Rd. Travis, E. W. 540 W. 113 239 W. 113 2176 Anthony ave. Taub, J. F. Northvale, N. J. Treadwell, B. H. Taylor, B. 17 E. 34, Bayonne 125 W. 121 510 W. 134 53 W. 126 Taylor, E. W. 254 Amity, Flushing Tremper, C. L. Whittier 606 W. 178 Taylor, H. A. Trenly, J. Truman, W. R. 48 E. 89 Trumpy, C. 142 W. 94 Trussell, E. D. 1 Graham Court, Taylor, J. I. Taylor, J. M. Taylor, M. S. Taylor, W. B. Hartley 20 W. 104 411 W. 115 Seventh ave. & 116 Teichman, I. c/o W. J. Timmons, Hartley Tsai, M. C. Hartley Tsai, P. Y. 99 Meserole ave., Bklyn Tubridy, J. Tucker, F. B. Teichner, J. Temko, A. 412 218 E. 86 Wards Is. 412 Essex, Bklyn 1775 Weeks ave. Templeton, M. P. Tucker, H. 3201 Perry ave. Tunison, W. K.

59 Harrison, E. Orange
Tunney, V. W. 15 Van Corlear Pl.
Turck, W. B.

500 W. 114 425 Clinton ave., Bklyn Terr, M. 24 E. 97 Thayer, N. 962 St. Nicholas ave. Theiss, M. A. 226 W. III Thibaut, M. Thiel, C. 166 W. 86 Tuthill, I. H. 1350 Webster ave. 87 Lafayette ave., Bklyn Thimble, F. N. 222 E. 59 Twachtman, Q. 5 W. 65 Thomlinson, J. D. Tyng, C. D. 1251 Waverly Pl., Elizabeth nd, E. 28 McDougal 2215 ave. J, Bklyn Thompson, W. G. Ueland, E. W. 169 & Haven ave. Thompson, S. W. (Opt.) 286 Lenox ave. Ulsamer, O. 602 W. 146 Underwood, E. 25 Beekman Pl. 565 W. 113 Upshaw, J. R. 568 W. 161 Brooks Thomson, E. Upton, L. Thomson, G. F. 522 E. 78 Uris, E. 16 E. 107 210 Riverside Dr. Thornton, E. S. Valentine H. 211 Centre ave., New Rochelle Valentine, H. 1384 Bristow Tice, W. 1867 Seventh ave. Valentine, S. 210 Riverside Dr. Van Buskirk, E. 536 Second, Bklyn Van Buskirk, G. L. 21 W. 123 Van Deusen, E. A. 700 St. Johns Pl., Bklyn Tichenor, C. L. Forster & Primrose aves, Mt. Vernon Tighe, S. M. 353 W. 117 Tilley, F. E. 1604-8 ave., Bklyn Tipton, E. 600 W. 116 Van Hoesen, M. C. 541 W. 156 Titus, H. 151 E. 81 Van Kirk, A. E. 423 W. 118 Toch, C. Todd, S. 329 W. 86 602 W. 137 Van Raalte, S. 10 W. 87 Van Santen, M. Todtschinder, P. 164 Sterling Pl., Bklyn n, A. 526 W. 114 98 Lee ave., Bklyn Van Sinden, A. Van Syckle, E. L. Van Tuyl, A. Van Tuyl, H. O. Alpine, N. J. 216 W. 38 Toepp, L. A.
142 York ave., New Brighton Tolischus, O. D. 505 W. 122 Tonjes, C. 768 Columbus ave. Tonkonogy, G., Jr. 129 E. 85 Van Tuyl, H. O. 569 W. 182 Van Valkenburgh, H. 501 W. 120 Vassar, H. Hartley palian, H. V.
59 Columbia Ter., Weehawken

Vernay, A. S.
Vernay, M. 170 W. 73 170 W. 73

Topalian, H. V.

Vessa, M. C. 140 Skillman ave., Bklyn Vetter, W. 2463 Marion ave. 612 W. 115 Vianna, A. 525 N. Beech, Vickers, G. Richmond Hill, L. I. Vining, I. Livingston 606 W. 115 Vogel, E. Vorhaus, A. 327 Central Pk., W. Wahlquist, J. B. 25 Madison Sq., N. Waite, F. 70 E. 45 Wälchli, F. Y. M. C. A, Paterson Walker, J. F. 414 Riverside Dr. Walker, L. V. 217 Claremont ave., Montclair Walker, M. 391 Audubon ave. Walker, W. F. 414 Riverside Dr. 531 W. 112 Wallach, E. Wallach, S. R. 279 E. 3
Waller, F. E. 973 Whitlock ave.
Waller, K. A. 164 Waverly Pl.
Walsh, M. F. L. 303 Henry, Bklyn Ware, G. 309 West End ave. Warnecke, W. 505 W. 164 505 W. 164 404 W. 115 318 W. 57 Warner, D. D. Warner, F. L. Warner, S. 2222 Third ave. Warnke, H. 705 Diamond ave., Bklyn. Warren, A. 1230 Amsterdam ave. Warren, H. S. 468 E. 134 Washburn, W., Jr. 24 Gramercy Park Washington, P. 442 St. Nicholas ave. Waterbury, A. E. Waterbury, C. H. Watson, G. E. Watson, M. D. Livingston 627 W. 113 15 W. 103 564 W. 149 328 E. 123 Watt, R. Watters, A. C. 540 W. 158 Watts, H. Riverdale Webb, H. G. 200 Grand ave., Bklyn Webb, Mrs. M. P. 450 Riverside Dr. Webber, C. 101 W. 93 Webster-Powell, Mrs. A. 915 President, Bklyn

407 W. 145

L. I. City

633 W. 115

154 Second ave.,

450 Audubon ave.

Wechsler, E. Weeks, E. T.

Weeks, W. C.

Wehrly, C. S.

Weidenfeld, H. (Opt.) 4 E. 107 Weil, C. 57 W. 87 Weil, F. L. 57 W. 87 Weinberg, H. N. 172 E. 63 Weinberg, T. 465 West End ave. Weinberger, I. 251 W. 114 10 E. 119 Weingart, B. 436 E. 138 Weinstein, J. Weinstein, P. 1006 Fortieth, Bklyn Weiss, B. 664 E. 166 454 W. 144 Hartley Weitzenkorn L. M. Welanetz, C. 185 Pearsall ave., Jersey City elch, C. E. 127 W. 126 Welch, C. E. Welch, T. F. 49 E. 130 Welles, L. M. 541 W. 123 Wellington, A. H. (Opt.) 600 W. 139 Wellington, L. C. 416 W. 118 Wells, B. Wells, H. J. C. 509 W. 121 509 W. 121 802 E. 169 Welter, E. A. Welton, W. F. Wendt, G. F. 2405 Bway 1713 Taylor ave. Wendt, Mrs. L. B. 404 W. 116 Wennerlund, J. L. 2504 Bathgate ave. 45 John 527 W. 121 Wesley, S. Wessa, I. West, W. L. 849 St. Nicholas ave. Westfall, M. 631 W. 142 Westlin, G. 501 Devon, Arlington Whallay, J. M. 508 W. 122 Wheat, Mrs. C. S. 200 Claremont ave. Wheeler, E. 62 Hudson ave., Haverstraw Whelan, I. L.

Wheelock, R. 822 Lexington ave.

72 Van Nostrand ave., Jersey City Whitaker, M. A. 32 Remsen, Bklyn White, J. P. 152 E. 80 White, L. 261 Steuben, Bklyn Whitney, J. Whitney, V. B. 1237 E. 104 1037 Ogden ave. 366 Fifth ave. Wick, J. M. 260 W. 15 321 W. 92 540 W. 165 Widmer, M. Wielar, H. Wikander, E. A. Wild, G. H. (Opt.) 430 W. 118 519 W. 121 Wilds, E. 519 W. 121 Wilds, F. P.

Wilkes, B. C.

49 St. Nicholas Terrace Wilkinson, R. A. Tuckahoe Wilkinson, W. F. 4286 Park ave. White Plains Willets, G. Williams, A.

218 Water, Perth Amboy Williams, H. V. Whittier Williams, R.

3904 Chestnut, Phila., Pa. Williamson, C. E. 240 W. 116 Willingale, S. Jr. Willis, R. H. Winslow, W. S. 23 E. 88 164 W. 85 614 W. 113 Winter, L. 320 W. 84 Winterburn, F. W.

104 Riverside Dr. Wishengrad, L. 9 Essex Witte, A. F. A. 287 State, Bklyn Wohlfarth, A. 1350 Fulton ave. Wolf, G. W. 913 Longwood ave. Wolf, Mrs. R. S. W. 250 W. 82 Wolfe, R. V. 66 Edson, Corona Wolff, M. L. Wolff, M. S. 245 W. 113 880 W. 180 Wolff, S. 84 E. 108 Wolfson, A. M. 54 Morningside Dr. Wolfson, M. H. 54 Morningside Dr. Wood, A. Fl.

Wood, M. E. 162 Cleveland, Bklyn

Wood, W. H. 537 W. 123

Woolfolk, R. B. 610 W. 113 Wood, A. H. 537 W. 123 Wormser, E. 26 W. 54 Wright, F.

410 Van Houten, Paterson Wright, Mrs. H. S. 513 5th, Bklyn 420 W. 121 Wright, M. Wulff, I. H. 706 President, Bklyn Wyatt, C. (Opt.) 500 W. 122

Wyckoff, J.

79 Clinton ave., Jamaica Wyeth, L. J. 1109 Madison ave. Wykes, A. G. 209 W. 85 Wyman, Mrs. F. 325 W. 83 Wynkoop, R. 11 W. 91 Younker, I. 58 Central Park, W. Yule, J. 289 Fourth ave. Zacharias, H. 1352 Clinton ave. Zehngebot, A. 240 E. 119 Zeiger, F. 74 W. Washington Pl. Zeiger, T. Zender, E. W. Zent, E. G., Jr. 4611 Park ave. 369 W. 120 175 W. 73 Zepler, F. 575 W. 159

Ziegler, L. Zink, N. H. 112 W. 139 604 Tinton ave. W. Zoellner, H. Hartley 556 W. 150 Zoller, H. E. Zollinger, E. 23 W. 184 Zucker, L. (Opt.)

Hudson Terminal Zuege, H. W. 958 Steinway ave., Long Island City 1535 St. Nicholas ave. Zwilling, J.

#### BROOKLYN.

Adams, B. Allen, T. G. Barry, A. R. 473 Willoughby 575 Bergen 722 Carroll 964 Greene ave. Bennett, M. V. Brady, F. 94 Seventh ave. Brunjes, W. G. 1475 Greene ave. Buermeyer, M. D. 193 St. John's Pl. Campbell, J. B. Caplice, M. 87a Somers 258 Hooper Carrington, S. T.

211 So. Broad, Elizabeth Clarkson, J. 62 Winthrop Cochran, G., 431 W. 117 Collins, M. R. 420 Sterling Pl. Cummings, B. R. Curran, W. I. 988 Simpson 117 Clymer Curtin, C. 186 Berkeley Pl. David, A. 1564 Forty-ninth Diossy, A. D. 411 Greene ave. Doherty, L. A. 503 Sixth 117 Berkeley Pl. 59 Park Pl. 228 Seventh ave. Doye, R. Early, E. Falvey, F. Forbes, L. J. 550 Throop ave. Francies, C. E. 59 Grove, Elmhurst Gelson, H. 240 Gates ave. Genung, I. E. 1236 Pacific Greenberg, L. 183 Greene ave.

Judge, E. Kemp, G. B. 366 Webster ave., Jersey City ng, D. C. 480 McDonough Kling, D. C. Lauterbach, H. 820 Classon ave. Lawson, R. 24 Woodbine Lazarus, L. A. 85 Ralph ave. 90 S. Oxford 90 S. Oxford Lucy, A. Lucy, M. McGinn, K. M. 153 Prospect Pl. 1554 Fifty-fifth Murray, A.

Hay, T.

Heckleman, I.

Heye, C. T.

107 Columbia Heights

153 Second ave.

162 Eighth ave.

21 Park Pl.

Nevin, J.
Ormiston, J.
Peiter, H.
Peterson, H.
Phelan, F.
Pietsch, N. Y.
Powers, F.
Prescott, L.
M.
M.
Ormiston, J.
391 Fourth
118 Sterling Pl.
9 Lewis ave.
417a Halsey
21532 Bedford ave.
210 St. Johns Pl.
211 L. M.

High School, Far Rockaway Quinn, E. A. 219 Warren Quinn, J. S. 219 Warren

Reichardt, P.

440 Willard ave., Woodhaven

Root, L. F. 97 Hardenbrook ave., Jamaica Russell, A. F. 424 First Russell, L. 424 First Shannon, A. M. Hollis Squire, R. C. 366 Sixth Stacey, S. G. Stone, B. 177 Woodruff ave. 1128 Bedford ave. Strom, C. A. W. 413 Seventy-fourth Sweet, E. L. I. Coll. Hospital L. I. Coll. Hospital Tilley, F. E. 1604 Eighth ave. White, L. 261 Steuben Winslow, J. E. 132 Remsen 287 State 912 E. 18 Witte, A. Young, L.

#### BUFFALO, N. Y.

Bartlett, B. 1159 Main 20 Chenango Battey, A. 424 Parkside Becker, S. Benson, C. State Nor. School Block, B. 236 Highland Bonnar, M. 50 Indian Church Rd. Brady, E. 126 Herkimer 126 Herkimer 48 Normal Brinkmann, M. Butler, H. L. 32 Johnson Pk. Butler, I. 150 Lexington Crellin, M. 618 Auburn ave. 618 Auburn ave. Crellin, M. A. 420 Breckenridge De Viney, C. Erisman, G. Lancaster Harris, F. 28 Livingston 827 Bird Hess, I. Hilfinger, A. 121 Livingston 507 Connecticut Ingram, I. Keating, M. 146 Oxford Kempke, C. Kempke, I. 365 Norwood 365 Norwood King, A. 510 Plymouth Kneubuehl, C. 43I Oak Lovejoy, M. 742 Seventh McGowan, A. 2520 Main Mac Arthur, Williamsville 535 Mass. Merington, M. Mickle, J. 98 Putnam 455 Herkimer Mills, M. Nachhar, E. 96 Lafayette Navagh, M. 287 Fifteenth Neal, F. 256 Bryant Reining, I. K. Roehsler, T. A. Ryan, K. T. 352 Crescent ave. 134 Edna Pl. 103 Northland ave. Sangster, C. Scanlen, T. 149 Hoyt 176 Cleveland Seitz, C. 472 Auburn Siekmann, C. 94 Parkdale Small, E. 294 Hudson Smith, C. Smith, E. 1101 Elmwood 425 Porter ave. Smith, E. S. 425 Porter ave. Smith, H. 39 Park 661 Richmond Smith, M. 134 Congress 366 W. Delevan 368 W. Delevan Starr, H. Sutherland, H. Sutherland, J. Taylor, C. 810 Richmond Vincent, M. 269 Niagara Wagner, Mrs. F. 126 Auburn

# NEWARK, N. J.

Aierstock, W.
Aierstok, L.
Albertson, M.
Albertson, M.
H.
357 Summer ave.
36 S. 10

187 N. Maple ave., E. Orange Alden, C. E. 30 E. 33, Bayonne Baillet, M.

48 Chapman Pl., Irvington, N. J. Baldwin, E. M. 158 S. 10 Blau, E. 107 S. 7 Bleecker, A. S.

86 Oakland ave., Bloomfield, N. J. Breunig, V. 193 S. 7
Brown, C. H. Summit, N. J. Champlin, L.

Clokey, W. 32 Nassau Crane, H. L. 854 S. 13 Croswell, E.

81 Harmon, Jersey City Culliney, M. 216 Valley, Orange Dalrymple, G. H.

Dressel, A. B. Arlington, N. J. Erbacher, A. L. 39 N. 6 Flanagan, J. 129 Clifton ave.

Fowler, M. B. 154 Laurel ave., Arlington Freeman, Mrs. H. A.

735 Highland ave. Frost, E. E. 34 Halsted, Orange Furschbach, L. 139 Ridgewood ave. 477 Bergen Goerdes, W. Greenwood, H. 325 Woodside ave. Grief, E. 322 Bloomfield, Hoboken 553 Elizabeth ave. Hannoch, A. 174 Garside Heery, M. Hehn, P. W. 113 Bloomfield ave. Hetzel, F. W. 65 Park, E. Orange Hewitt, N. P.

40 Central ave., E. Orange Hock, F. W. 283 North Sixth Kaulke, J. Lamb, K. Arlington 289 Woodside ave. 154 S. Tenth Liedtke, J. McQuat, E. 1153 Clifton ave. Mancusi-Ungaro, T.

156 Mt. Prospect ave.

Maron, L. Milwitzky, A. 152 Elizabeth ave. Montgomery, G. G.

499 Chestnut, Arlington

Moore, J. E. 45 N. Midland ave., Arlington Moore, J. E. Bloomfield, N. J. Müller, M. 33 Columbia ave. Murphy, W. A.

III Fort Greene Pl., Bklyn Nuffort, W. 900 S. 16 Parks, R. 14 Elm Parsons, W. R. Elizabeth Peberdy, W. H. 260 Convent ave. Powelson, S. Rossiter, R. 22 Astor

153 S. Grove, E. Orange Saslow, E. A. 762 S. 14 Schaefer, F.

Seiler, C. J. 62 Osborne Ter.

Short, J. 97 Clifton ave. Slocum, E. 254 Mount Pleasant ave.

Spargo, J. 350 Park ave. Sperling, H.

391 Marlborough Rd., Bklyn

Tompkins, J

58 Midland ave., Arlington Vygen, H. E. 507 Central ave. Wardell, M. E. 191 N. Sixth Watson, R. 14 Gardner Pl., Montclair Welch, F. 556 Warren Werts, M.

Wheeler, E.
6 University Pl., E. Orange
Wolfs, M. L.
915 S. 16 Milburn, N. J. Wootton, J. G.

TRENTON, N. J. E. 686 Stuyvesant Adams, E. State Nor. School Alden, H. Ale, I. 419 S. Olden 319 Market Apgar, M. L. Bartlett, A. II Tyrell 860 Quinton 860 Quinton Blake, J. Blake, O. 357 Schiller Briscoe, C. M. 205 S. Broad Camera, A. A. Carroll, K. M. 117 Centre 117 Centre 2116 S. Broad 2116 S. Broad Carroll, M. Cheston, E. Cheston, L. Clair, E. K. 19 Carroll 266 Lafayette Cochran, K. B. Coleman, Dr. A. Clinton Connelly, M. A. 260 Bellevue Conners, M. F. Cotter, E. B. 113 Culbertson Dellicker, H. M. 170 W. State Dillingham, Mrs. H. 100 Bellevue Dooling, M. V. Dunn, G. A. Dunn, M. F. 702 Princeton 233 Perry 233 Perry Eagen, M. E. 201 Pennington Box 368 Edwards, S. Eilenberger, R. Clinton II Jarvis Pl. Farley, H. G. Finger, M. 215 Rosemont 66 N. Clinton Fitzcharles, J. Fluerty, M. I. 525 Roebling ave. 206 N. Clinton Fox, E. Francis, L. E. 52 Houghton Godshalk, C. W. 41 Yard 525 Second Gribbin, M. J. Griffin, T. Grover, H. D. 78 Bellevue Hightstown, N. J. 42 Bank Haney, H.Haney, K. E. 564 Centre Hart, P. Heil, F. B. 409 Johnston 315 Pennington Henderson, E. 187 George Hoffman, J. S. Flemington Hornor, L. B. 2203 S. Broad 713 Chestnut Howard, K. M.

Hutchinson, H. P. 924 W. State 253 Bellevue Ivens, L. E. Jackson, Mrs. G. T. Kennedy, M. E. 1229 N. Olden Kenner, M. E. 813 S. Clinton ave. 1229 N. Olden Kinney, T. E. 33 Barnes Lemon, B. 112 Spring 909 E. State Lewis, A. Longmore, H. L. 42 N. Clinton McCann, K. M. McGill, M. M. 37 Humboldt 50 Carroll McLui, A. E. 847 Carteret MacDonough, E.

104 N. Hermitage ave. Macpherson, E. A. 208 Mercer Mahlow, H. B. 246 Jackson Mathes, L. A. Mathies, F. M. 40 Wall 634 Princeton Maurice, H. C. F. 285 Church Moore, E. Neal, L. State Hospital Skillman Noble, C. S. 14 Southard 227 Tyler Northwood, B. 826 E. State O'Brien, J. G. Poeller, A. Pollock, S. T. Pursell, M. I. 1302 Chestnut 614 Perry Yardley, Pa. Radcliffe, P. R. Flemington Rathbun, M. B. II Tyrell Reed, L. M. 443 Chestnut Scott, R. 219 Highland Smith, C. E. 528 S. Clinton Smith, E. L. 169 Passaic Smyth, M. A. 204 Pennington Stapleton, M. A. 128 Spring Stryker, S. M. Skillman, N. J.

484 W. State Suydam, C. Trossbach, A. S. 884 S. Broad Udell, Z. E. State Home for Girls 30 Fountain Umstead, M. von Vorgtlander, M. 40 Atterbury Waite, H. B. Morrisville, Pa., 34 Ogden Wallace, N. M. 847 Carteret Watson, H. Weeks, L. Skillman, N. J. Weldin, W. 264 Hamilton Williams, L. M. 446 W. Hanover Wolverton, C. J. 248 Pearl Wood, G. A. Woodward, L. E. 449 Chestnut Wriggins, E.

# ELMHURST, N. Y.

Beaumont, M. C. Ivy Bentley, M. L. 71 Hanover ave. Cox, S. A.

103 Fisk ave., Maspeth, L. I. Dalton, C. E. 15 Toledo ave. Fairchild, M. A. 4 Fourth 57 Main ave. Grady, H. J. Haddow, M. F. 70 Grove Johnston, M. L. 68 Ludlow ave. Kane, K. E. 2 Toledo ave. King, I. C. 70 Twenty-fifth Mayhew, C. 75 Grove 57 Main ave. Mourin, F. A. Ricard, C. J. 10 Toledo ave. Smith, C. W.

9 Clinton ave., Corona, L. I. Wilcox, C. L. 15 Toledo ave. Wilson, J. L. 4 Toledo ave.



14

# Columbia University in the City of New York

# EXTENSION TEACHING

Afternoon, Evening and Saturday Classes

SECOND HALF YEAR
FEBRUARY 4 TO MAY 28, 1914

New York Morningside Heights

# OFFICERS OF EXTENSION TEACHING 1913-1914

NICHOLAS MURRAY BUTLER, President of the University

#### Administrative Board

James Chidester Egbert, Ph.D.

Professor of Latin

Director of Extension Teaching and the Summer Session

FREDERICK J. E. WOODBRIDGE, L.L.D. Johnsonian Professor of Philosophy Dean of the Graduate Faculties

Frederick Paul Keppel, Litt.D. Dean of Columbia College

VIRGINIA C. GILDERSLEEVE, PH.D. Dean of Barnard College

PAUL MONROE, Ph.D.

Professor of the History of Education

FRANK ALLEN PATTERSON, PH.D.

Instructor in English

Assistant to the Director

Frank Diehl, Fackenthal, A.B. Secretary of the University

FRANK A. DICKEY, A.B. Registrar

CHARLES S. DANIELSON
Bursar

## COURSES OF THE SECOND HALF YEAR 1913-1914

The courses in Extension Teaching for the second half year will begin February 4, 1914. Students who are qualified may enter any of these courses with the understanding, however, that tor courses marked \* students must have covered the work of the first half year or its equivalent.

Students must register in person at the Registrar's Office for courses at Morningside Heights; in Brooklyn at 51 Seventh Avenue; and must

pay their fees at the time of registration.

These courses count toward various degrees in accordance with the regulations which are stated in the Announcement of Extension Teaching. No examinations are required for admission, but students must satisfy the Administrative Board that they can pursue the courses with advantage. All classes, unless it is otherwise stated, are open to men and women.

The courses in Extension Teaching which are counted toward the collegiate degrees in Columbia University will also be accepted for counts by the Regents of the University of the State of New York without

further examinations.

All students in Extension Teaching are required to renew their registration at the beginning of the second half year. After February 14 every student who has not paid his fee will be excluded from the course, and a fee of \$1 in addition to the regular fees for tuition will be charged for all renewals of registration and changes of courses after that date. Students wishing to withdraw must notify the registrar at once; they are liable for the fee until the end of the half year.

The office of the Registrar, Room 201 East Hall, will be open in addition to the regular daily hours, 9 a.m. to 5 p.m. (except Saturday) from January 29 to February 13 from 7 to 9.30 p.m. and thereafter from 7 to 9 p.m. The Saturday hours are from 9 to 12.

The office of the Bursar will be open daily from 9.30 a.m. to 3.30 p.m. and on Saturday morning from 9 to 12. This office will also be open every evening from 7 to 9 (except Saturday) from January 29 to February 13, 1914, and from February 16 to 27 on Monday and Friday

evenings only.

For further information concerning these courses or concerning any questions that may arise, students should call at the office of the Director. Room 306, Philosophy, Morningside Heights, which is open from 9-5 daily, Saturday 9-4. This office will also be open evenings from 7 to 9.30, February 2 to 11, 1914.

For courses given in Brooklyn, Elmhurst, Jersey City, Paterson and

Trenton, see special circulars.

Courses that are marked \* are open only to students who have taken the preceding half year or its equivalent. All other courses are open to new students without restriction except as noted in the description

# Accounting, p. 6

#### Advertising, p. 16

#### Agriculture.

e2-Principles of agriculture. Lectures and laboratory. 3 points. Professor Morgan.

Sec. 1-9.10-11 a.m., S., Room 505 Schermerhorn; laboratory 9.30

a.m., W., Room 502 Schermerhorn. Credit I, IV. Fee \$15

Sec. 2—7.40-9.30 p.m., Tu., Room 516 Schermerhorn. Fee \$10 e2a—Course 2 with laboratory work omitted. 2 points. Fee \$10

e4—Animal husbandry. Lectures and laboratory. 3 points. Mr. Bowes

1.10 p.m., Tu. and Th., Room 516 Schermerhorn; laboratory, 2-4 p.m., Th. Credit I. Credit IV if specially approved before registration. Fee \$15. Open only with consent of the instructor

e8-Soils and fertilizers. Lectures and laboratory. 3 points. Mr. Lake

2.10-3 p.m., M. and F., Room 505 Schermerhorn; laboratory 3-5 p.m. Credit IV. Fee \$15. Open only with consent of the instructor

e10-Principles of horticulture. Lectures and laboratory. 3 points. Mr. Fraser

3-4 p.m., M., Room 505 Schermerhorn and 4-5 p.m., Th., Room 401 Schermerhorn; laboratory 2.10-4 p.m., M., Room 502 Schermerhorn and in greenhouse. Credit IV. Fee \$15

e12-Poultry husbandry. Lectures and laboratory. 3 points. Mr. Clark

7.30-9.30 p.m., M. (lectures), Room 505 Schermerhorn; 2-4 p.m., S. (laboratory). Fee \$15. Credit IV if specially approved before registration. Open only with the consent of the instructor

## Assyrian, p. 18

#### Architecture

eW2—Elementary freehand drawing. (See also under Mechanical Drawing.) Six hours drafting per week. Mr. Beans

7-10 p.m. W.; 2-5 p.m. S., Room 601 Engineering. Fee \$15

\*e2—The elements of architecture. 3 points. Professor Harriman 8-10 p.m., W. and F., Room 505 Avery. Credit V. Fee \$15

e4—Shades and shadows. 4 points. Course e5 repeated in the second half year for students entering at that time. Professor Sherman

6.10-7 p.m., M., W. and F., Room 405 Avery; Tu. 7.30-9.10 p.m., Room 504 Avery. Credit V. Fee \$20

Given if called for by twelve students.

e6—Perspective. 3 points. Professor Sherman 7-7.50 p.m., M. and W., Room 405 Avery; 7.30-9.10 p.m., Tu., Room 504 Avery. Credit V. Fee \$15

\*e10—Descriptive geometry. 2 points. Professor Harrington 6.30-7.20 p.m., Tu. and F., Room 306 Engineering. Credit IC, V. Fee \$10

e14—Building materials. 2 points. Mr. Pond 9-9.50 p.m., M. and W., Room 405 Avery. Credit V. Fee \$10

\*e16—Structural design. 2 points. Mr. Pond 8-8.50 p.m., M. and W., Room 407 Avery. Credit V. Fee \$10 e22—Ancient and medieval architecture. 1 point, if taken with some other course. Curator Bach

6-6.50 p.m., F., Room 407 Avery. Credit I, V. Fee \$5

e24—Renaissance, modern and Oriental architecture. 1 point, if taken with some other course. Curator Bach 6-6.50 p.m., M., Room 407 Avery. Credit I, V. Fee \$5

e32—History of ancient ornament. 1 point, if taken with some other course. Curator Bach 6-6.50 p.m., W., Room 408 Avery. Credit I, V. Fee \$5

e72—Drawing. 2 points. Professor Harriman 8-10 p.m., M. and Th., Room 504 Avery. Credit V. Fee \$10 Open with the consent of the instructor

#### Design

\*e62—Elementary design. 20 hours. Mr. Prévot and Mr. Ware Room 202 Avery. Credit V. Fee \$20

\*e64—Intermediate design. 20 hours. Mr. Prévot and Mr. Ware Room 202 Avery. Credit V. Fee \$20

\*e66—Advanced design. 20 hours. Mr. Prévot and Mr. Ware Room 202 Avery. Credit V. Fee \$20

# Biology, p. 20

# Bookkeeping, p. 6

# Botany

\*e2—Nature and development of plants. Lectures and laboratory. 4 points. Dr. Dodge

7.20-8.35 p.m., Tu. and F., Room 505 Schermerhorn. Laboratory, 8.35-9.50 p.m. Credit I, IV. Fee \$20

\*e2a—General botany. Lectures and laboratory. 2 points. Dr. Dodge

1.10 p.m., S., Room 505 Schermerhorn. Laboratory, 2.10-4 p.m., Room 502 Schermerhorn. Credit I, IV. Fee \$10

\*e4a—Structure and classification of cultivated plants. Lectures and laboratory. 2 points. Dr. Dodge

10-11 a.m., S., Room 407 Schermerhorn. Laboratory, 11-12 a.m., Room 502 Schermerhorn. Credit I, IV. Fee \$10

e6—Students having completed the preceding courses may continue their work by registering for this course, the hours and character of the work to be determined upon consultation with Professor Harper. 2 points. Credit I. Fee \$10

e10-Forest botany. Lecture, laboratory and field work. 2 points. Dr. Dodge

1.10-2.10 p.m., S., Room 516 Schermerhorn. Laboratory 2.10-4 p.m., Room 502 Schermerhorn. Credit IC. Credit IV if specially approved before registration. Fee \$10

Building Materials, p. 4
Business English, p. 9

Business Organization, p. 7

Business and Social Statistics, p. 7

Cataloguing, p. 14

#### Chemistry

e6—General inorganic chemistry. 2 hours classroom work and 6 hours laboratory work. 5 points. Dr. Neish and assistant 7-9.50 p.m., Tu., W., and 7-8.50, F., Room 301 Havemeyer. Credit I,

IV, V. Fee \$25

A beginning course in inorganic chemistry, open to students who have had an elementary course in chemistry, either in the University or elsewhere.

Laboratory fee \$12.50. Deposit for breakage \$10.

\*e42—Organic chemistry. Introductory lecture course. 2 hours. 2 points. Dr. Fisher 7.10-8 p.m., M. and W., Room 413 Havemeyer. Credit I, V. Fee \$10

\*e44—Organic chemistry. Laboratory course. 4 hours per week. 2 points. Dr. Fisher 8-10 p.m., M. and W. Room 405 Havemeyer. Credit I, V. Fee \$10

Laboratory fee \$10 each half-year. Deposit for breakage \$10.

\*e68—Qualitative analysis. 2 lectures and 5 hours laboratory work. 4 points. Mr. Lombard 7.20-9.50 p.m., M., W. and F., Room 511 Havemeyer. Credit I, IV, V. Fee \$20

Chorus, p. 15

#### Commerce

(See also special circular)
Accounting

\*e2—Elementary bookkeeping. Mr. Baltz 7.40-9.30 p.m., F., Room 511 Journalism. Fee \$15

\*e4—Principles of accounting. 2 points. Mr. Koopman 7.40-9.30 p.m., Th., Room 501 Journalism. Fee \$10

\*e6—Practical accounting. 2 points. Mr. Boyce 7.40-9.30 p.m., W., Room 511 Journalism. Fee \$10

\*e8—Cost accounting. 2 points. Mr. Nicholson 7.40-9.30 p.m., W., Room 516 Schermerhorn. Fee \$10

e10—Auditing practice and practical accounting problems. 2 points. Mr. Montgomery

7.40-9.30 p.m., F., Room 603 Journalism. Fee \$10 Open only with the special consent of the instructor.

#### Commerce

\*e2—Principles of economics. 3 points. Dr. Stevens. Credit I, IV 7.30-10 p.m., S., Room 612 Journalism. Fee \$15

e4—Business organization and administration. 2 points. Dr. Stevens

7.40-9.30 p.m., W., Room 512 Journalism. Fee \$10

\*e6—Commercial geography. 2 points. Credit IV. Professor Mc-Farlane

7.40-9.30 p.m., Th., Room 512 Journalism. Fee \$10

\*e10—Business and social statistics. 2 points. Credit 1b. Professor Chaddock

7.40-9.30 p.m., W., Room 405 Kent. Fee \$10

\*e12—Railway and water transportation. 2 points. Dr. Willis 7.40-9.30 p.m., M., Room 512 Journalism. Fee \$10

\*e14—Railway traffic and rates. 2 points. Dr. Willis 7.40-9.30 p.m., Tu., Room 512 Journalism. Fee \$10

e16—Salesmanship. 2 points. Mr. Hubbart 7.40-9.30 p.m., Tu., Room 408 Avery. Fee \$10

#### Commercial Law

e2-Negotiable instruments. 2 points. Mr. Currier 7.40-9.30 p.m., F., Room 405 Kent. Fee \$10

e4—Corporation law. 2 points. Professor Gifford 7.40-9.30 p.m., Th., Room 405 Kent. Fee \$10

#### English

Commercial English e2—Business English and commercial correspondence. Mr. Duncan

7.40-9.30 p.m., F., Room 609 Journalism. Fee \$20

e12a-Public speaking. 2 points. Fee \$10

Sec. 1-7.40-9.30 p.m., W., Room 612 Journalism. Credit IV. Mr. Dow

\*Sec. 2-7.30-9.20 p.m., Th., Room 612 Journalism. Credit I, IV. Mr. Halliday

#### Finance

\*e2—Corporation finance. 2 points. Dr. Stevens 7.40-9.30 p.m., Tu., Room 603 Journalism. Fee \$10

\*e4—Money and banking. 2 points. Professor Agger 7.40-9.30 p.m., M., Room 603 Journalism. Credit I, IV. Fee \$10

\*e6—Banking organization and foreign exchange. 2 points. Professor Agger

7.40-9.30 p.m., Th., Room 603 Journalism. Fee \$10

e8—Property insurance. 2 points. Dr. Stevens 7.40-9.30 p.m., Th., Room 507 Journalism. Fee \$10

e10—Investments. 2 points. Mr. Keys 7.40-9.30 p.m., M., Room 507 Journalism. Fee \$10

e12—Public finance. 2 points. Dr. Haig 7.40-9.30 p.m., F., Room 507 Journalism. Fee \$10

# Industrial History

History e156—Social and industrial history of modern England. Professor Shotwell 7.30-9.30 p.m., Tu., Room 615 Kent. Credit II, half course, IV. Fee \$10

# Indexing and Library Training

Library e2—Indexing, filing and cataloguing as applied in business. 2 points. Miss Williams 8.20-10 p.m., M., Room 609 Journalism. Fee \$10

## Sociology

e142—Social problems. Lectures, readings and discussions. Half course. Mr. Shenton 7.30-9.20 p.m., W., Room 605 Journalism. Credit II, IV. Fee \$10

e152—Historical evolution of society. Mr. Shenton 7.30-9.20 p.m., M., Room 614 Kent. Credit II, IV. Fee \$10

Commerce and Industry, p. 6

Commercial Geography, p. 7

Commercial Law, p. 7

Concrete Construction, p. 9

Construction, p. 9, 19

Design, p. 5

Drafting, p. 14, 15

Economics, p. 6

#### Education

e24—Psychology and treatment of exceptional children. Dr. Bisch 8-9 p.m., F., Room 302 Philosophy. Fee \$5
For a course in Public School music see p. 15.

# Engineering

# Civil Engineering

\*e2—Theory of plane surveying. For first-year students in the Schools of Mines, Engineering and Chemistry. 2 points. Mr. Finch 7.30-9.10 p.m., W., Room 301 Engineering. Credit I, V. Fee \$10

e2a—Field problems in plane surveying. Mr. Fish. A short course in field work arranged as a supplement to course e1-2
1,30-5, ten Saturday afternoons, and one evening beginning March

14, Room 407 Engineering. Fee \$7.50

\*eX2—Theory of railroad surveying. Mr. Finch 7.30-9.10 p.m., M., Room 301 Engineering. Fee \$10

eX2a-Field problems in railroad surveying. Mr. Fish. Similar to course e2a arranged for students in course eX1-X2.

1.30-5, ten Saturday afternoons, beginning March 14, Room 407 Engineering. Fee \$7.50

\*eY2-Plain and reinforced concrete construction. Mr. Finch 7.30-9.10 p.m., Th., Room 301 Engineering. Fee \$15

# Electrical Engineering

\*e2-Principles of dynamo-electric machinery. Lectures and laboratory. Mr. Hamilton

7.30-9.10, M. and Th., Room 302 Engineering. Fee \$20

Note .- A deposit of \$10 to cover possible breakage is required of students taking Electrical Engineering e2.

e4-Alternating currents. Mr. Hehre 7.30-9.10 p.m., Tu. and F., Room 302 Engineering. Fee \$20

#### English

eV2-English for foreigners. Mr. Duncan 7-7.50 p.m., M. and Th., Room 609 Journalism. Fee \$15

\*eW2-English composition. Mr. Duncan 6.10-7 p.m., M. and Th., Room 511 Journalism. Fee \$20

eW4—English grammar. Course eW1 repeated in the second halfyear Mr. Duncan

8-8.50 p.m., M. and Th., Room 707 Journalism. Fee \$20

\*eX2-College entrance English. Books for reading. Reading of texts, themes, conferences, tests, lectures, special oral reports, discussions. Dr. Gaston

4.30-5.45 p.m., M. and Th., Room 512 Journalism. Fee \$20

eX4-College entrance English. Course eX1 repeated in the second half-year for new students entering at that time. Dr. Gaston 7-8.15 p.m., M. and Th., Room 512 Journalism. Fee \$20

\*eY2-College entrance English. Books for study. Study of texts, themes, tests, lectures, discussions. Fee \$15

Sec. 1-4.30-5.50 p.m., W., Room 512 Journalism. Mr. Mitchill Sec. 2-7-8.20 p.m., W., Room 609 Journalism. Mr. Duncan

eY4-College entrance English. Course eY1 repeated in the second half-year. Mr. Duncan 7-8.20 p.m., Tu., Room 609 Journalism. Fee \$15

e2—Business English and commercial correspondence. Mr. Duncan 7.40-9.30 p.m., F., Room 609 Journalism. Fee \$20

\*eA2-English composition. Lectures, themes and conferences. 3 points each half-year. Credit I, IV. Fee \$15

Sec. 1-7-8.15 p.m., M. and Th., Room 307 Philosophy. Dr. Wolff Sec. 2-7-8.15 p.m., Tu. and F., Room. 614 Kent. Mr. Haller

eA4-English composition. Lectures, themes and conferences. 11/2 points. Dr. Wolff

eA8—English composition. Lectures, themes and conferences. 3 points. Mr. Clark

8.20-9.35 p.m., M. and Th., Room 713 Journalism. Credit I, IV.

Fee \$15

Course eA1 given in the second half-year for students beginning at that time.

eB2—English literature and composition. Lectures, themes and conferences. 2 points. Dr. Wolff

8.45-9.35 p.m., M. and Th., Room 307 Philosophy. Credit I, IV.

Fee \$10

e2a—English composition. Advanced course. Lectures, themes, and theme criticism. 1½ points. Dr. Wolff

11-12.15 a.m., S., Room 610 Journalism. Credit I, IV. Fee \$7.50

e2d—English composition, A continuation of course e2a. Dr. Wolff

12.15-1.05 p.m., S., Room 610 Journalism. Fee \$5

e2b—The short story. English composition. Theory of fiction writing. Miss Williams
10.20-11.35 a.m., S., Room 603 Journalism. Fee \$15

e2c—The short story. English composition. Theory of fiction writing. Miss Williams
11.45 a.m.-1 p.m., S., Room 603 Journalism. Fee \$20

e4a—Dramatic composition. Mr. Hughes 2-3.15 p.m., S., Room 611 Journalism. Fee \$15

e12a-Public speaking. 2 points. Fee \$10.

Sec. 1-7.40-9.30 p.m., W., Room 612 Journalism. Mr. Dow. Credit IV

\*Sec. 2—7.30-9.20 p.m., Th., Room 612 Journalism. Mr. Halliday. Credit I, IV

e18—Modern literature, English and foreign. 2 points. Mr. Steeves 7.30-8.20 p.m., Tu. and F., Room 605 Journalism. Credit I, IV. Fee \$10. Open with the consent of the instructor

e20—The history of American literature. 2 points. Dr. Van Doren 9-10.40 a.m., S., Room 709 Journalism. Credit I, IV. Fee \$10

e22—English literature from 1780 to 1830. 2 points. Dr. Patterson 8.20-10 p.m., W., Room 507 Journalism. Credit I, IV. Fee \$10

e24—English literature from 1830 to 1890. 2 points. Professor

10.40-12.20 a.m., S., Room 712 Journalism. Credit I, IV. Fee \$10 Open with the consent of the instructor

e36a—Shakspere. 2 points. Professor Tassin 4-5.40 p.m., Th., Room 603 Journalism. Credit I, IV. Fee \$10

e42—Development of the drama. 2 points. Dr. Hall 8.20-10 p.m., M., Room 612 Journalism. Credit I, IV. Fee \$10

e42a-Contemporary dramatic literature. 2 points. Mr. Hamilton 10-11.40 a.m., S., Room 206 Journalism. Fee \$10

e52a—English phonetics. 2 points. Course e51a repeated. Credit I, IV. Professor Gerig 11-12.30 a.m., S., Room 508 Philosophy. Fee \$10

e212-Principles of phonetics. Half course. Mr. Pierce 8-9 p.m., M. and Th., Room 610 Philosophy. Credit II, IV. Fee \$10

> Filing, p. 14 Finance, p. 7

### Fine Arts

e32—The history of sculpture. 1 point. Curator Bach 4.10 p.m., W., Room 407 Avery. Credit I, V, if taken with at least one other course. Fee \$5

e42-Theory of fine arts. 1 point. Curator Bach 4.10 p.m., F., Room 407 Avery. Credit I, V, if taken with at least one other course. Fee \$5

e52-Introduction to the history of art; Ancient, Mediæval, Renaissance, Modern and Oriental. 11/2 points. Mr. Smith 8-9 p.m., F., Avery Library. Credit IV. Fee \$10

e52a-The appreciation and history of art-a study of the originals in the Metropolitan Museum of Art. 2 points. Fee \$10. Dr. Kriehn

Sec. 1-10-12, S., Metropolitan Museum Sec. 2-2-4, F., Metropolitan Museum

> Forest Botany, p. 5 Framed Structures, p. 20 French, p. 17 Geography, p. 7

# Geology

e2—Historical geology. The origin of the earth and its development—succession of plant and animal life. 3 points. Mr. Burr 7.30-9.10 p.m., Tu. and F., Room 401 Schermerhorn. Credit I, IV. Fee \$15

e14-Elementary field geology. Principles and methods of geologi-

cal field work. 3 points. Mr. Burr
1.30-4.30 p.m., S., starting from Room 403 Schermerhorn. On rainy days and during the colder part of the winter laboratory exercises will replace the field work. Credit I, IV. Fee \$15

### German

\*eA2-Elementary course. 3 points. Credit I, IV. Fee \$15 Sec. 1-4.30-5.45 p.m., Tu. and F., Room 612 Journalism. Professor

Sec. 2-8.35-9.50 p.m., M. and Th., Room 605 Journalism. Dr. Porterfield

\*eA4-Elementary course. Equivalent to the last half of course eA1. 11/2 points. Mr. Bach 10-11.15 a. m., S., Room 611 Journalism. Credit I, IV. Fee \$7.50

\*eA6-Elementary course. Equivalent to the last half of course eA2. 11/2 points. Mr. Bach

11.30-12.45, S., Room 611 Journalism. Credit I, IV. Fee \$7.50

eA8—Elementary course. Equivalent to course eA1. 3 points. Mr. Eyster. Credit I, IV. Fee \$15 4.30-5.45 p.m., Tu. and F., Room 603 Journalism A course for students who have no knowledge of German.

\*eB2-Intermediate course. 3 points. Credit I, IV. Fee \$15 Sec. 1-4.30-5.45 p.m., Tu. and F., Room 609 Journalism. Mr. Schulze

Sec. 2-7-8.15 p.m., M. and Th., Room 615 Kent. Mr. Palmblad

\*eB4-Shorter intermediate course. 2 points. Mr. Bechert 9-10.40 a.m., S., Room 507 Journalism. Credit I, IV. Fee \$10

\*eB6—Intermediate course. Follows eA9; equivalent to eB1 of the first half-year. 3 points. Mr. Betz. Credit I, IV. Fee \$15 4.30-5.45 p.m., Tu. and F. Room 507 Journalism

e4-Composition and oral practice. Intermediate course. 11/2 points. Credit I, IV. Fee \$7.50

Sec. 1-11-12.15 a.m., S., Room 609 Journalism. Mr. Bechert Sec. 2-6.10-7.25 p.m., W., Room 605 Journalism. Mr. Betz Open with the consent of the instructor

e6-Introduction to the classics. Selected works of Goethe, Schiller and Lessing. 3 points. Professor Hervey
4.30-5.45 p.m., M. and Th., Room 302 Philosophy. Credit I, IV. Fee \$15

Open with the consent of the instructor.

e12—Composition and oral practice. Advanced course. 1½ points. Professor Heuser 11-12.15 a.m., S., Room 507 Journalism. Credit I, IV. Fee \$7.50 Open with the consent of the instructor

\*e104—Goethe's Faust. First and second parts. Half course Professor Thomas

9-10.40 a.m., S., Room 508 Philosophy. Credit II, IV. Fee \$10

# Gymnasium, p. 15

# Hebrew, p. 18

# History

eA2-Modern and contemporary history. Lectures, readings and discussion. 3 points. Dr. Humphrey 8.20-9.35 p.m., Tu. and F., Room 612 Journalism. Credit I, IV. Fee \$15

e12-The British Empire, 1689-1911. Lectures, readings and discussion. 2 points. Professor Schuyler 9.10-10.50 a.m., S., Room 707 Journalism. Credit I, IV. Fee \$10

e14-American history. 2 points. Mr. Kendrick 11-12.40 a.m., S., Room 707 Journalism. Credit I, IV. Fee \$10

e104-The political and social evolution of modern Turkey and Egypt. Lecture-study course. Half course. Professor Gottheil Lecture, 4.10-5 p.m., conference, 5-5.50 p.m., Tu., 512 Journalism. Credit for those taking both hours, II, IV. Fee \$10

e104a—Course e104 supplemented by assigned readings and reports. Full course. Credit II, IV. Fee \$20

e126-The Slavonic movement with especial reference to the Balkan States. Lecture-study course. Half course. Professor Prince 4-4.50 p.m., lecture; 4.50-5.40 p.m., conference, W., Room 307 Philosophy. Credit for those taking both hours, II, IV. Fee \$10

e150-The French Revolution and the Napoleonic era. Lecturestudy course. Half course. Professor Muzzey

4.20-5.10 p.m., lecture; 5.10-6 p.m., conference, W., Room 605 Journalism. Credit for those taking both hours, II, IV. Fee \$10

e154-Political and social history of Western Europe since 1848. Lecture-study course. Half course. Professor Hayes 11-11.50 a.m., lecture; 11.50-12.40 a.m., conference; S., Room 709

Journalism. For those taking both hours, Credit II, IV. Fee \$10

e156-Industrial history. Social and industrial history of modern England. Lecture-study course. Half course. Professor Shotwell 7.30-8.20 p.m., lecture; 8.20-9.30 p.m., conference; Tu., Room 615 Kent. Credit for those taking both hours, II, IV. Fee \$10

Note.—Course e156 may be counted as a full course when supplemented by extra work and upon the payment of an extra fee of \$10.

Horticulture, p. 4 Hygiene, p. 16 Indexing, p. 14 Insurance, p. 7 Investments, p. 7 Italian, p. 18

### Latin

eA4—Collegiate Latin, Livy (Books xxi-xxii); Terence, Phormio. 3 points. Dr. Guernsey

4.30-5.45 p.m., M. and Th., Room 609 Journalism. Credit I, IV. Fee \$15. The same as A1 in Columbia College

eX2-Caesar, Nepos and prose composition. Miss Wye 7-8.30 p.m., Tu. and F., Room 611 Journalism. Credit IV. Fee \$22.50

eY2-Cicero and Sallust. Miss Wye 7-8.30 p.m., M. and Th., Room 611 Journalism. Credit IV if taken in conjunction with eY4. Fee \$22.50

eY4—Latin prose composition. Miss Wye 4.10-5 p.m., Tu. and F., Room 611 Journalism. Credit IV if preceded by eY2. Fee \$15

eY6—Readings in Latin literature. 2 points. Miss Wye 5.10-6 p.m., Tu. and F., Room 611 Journalism. Credit IV. Fee \$15

eY8—Ovid and Vergil. Course eY1 repeated, if called for by eight students

# Law, commercial, p. 7

# Library Training

e2—Indexing, filing and cataloguing as applied in business. 2 points. Miss Williams 8.20-10 p.m., M., Room 609 Journalism. Fee \$10

### Mathematics

eX2—Algebra. Course eX1 repeated. Mr. McMackin 7-7.50 p.m., M., Tu., Th., F., Room 707 Journalism. Fee \$25

eY2—Plane geometry. Course eY1 repeated. Mr. Mitchell 6-6.50 p.m., M., Tu., Th., F., Room 707 Journalism. Fee \$25

eA2—Solid geometry. 3 points. Mr. Gordon 7-8.15 p.m., M. and Th., Room 713 Journalism. Credit I, IV. Fee \$15

eA4—Trigonometry and algebra. Course eA1 repeated. 3 points Mr. Nowlan 6.10-7.25 p.m., Tu and F., Room 712 Journalism. Credit I, IV. Fee \$15

e4—Analytical geometry. Course e3 repeated. 3 points. Mr. B. E. Mitchell
8.20-9.35 p.m., M. and Th., Room 709 Journalism. Credit I, IV, V. Fee \$15

\*e16—Calculus. 3 points. Mr. B. E. Mitchell 7-8.15 p.m., Tu. and F., Room 709 Journalism. Credit I, IV, V. Fee \$15

e76—Calculus, 4 points. Mr. Pfeiffer 6-7.40 p.m., M. and Th., Room 709 Journalism. Credit I, IV, V. Fee \$20

# Mechanical Drawing

eW2—Elementary freehand drawing. Six hours drafting per week. Mr. Beans 7-10 p.m., W., 2-5 p.m., S., Room 601 Engineering. Fee \$15

\*e2—Mechanical drafting. 1 hour lecture and 5 hours draftingroom work per week. 2½ points. Professor Harrington 7.20-10 p.m., Tu. and F., Room 607 Engineering. Credit IC, V. Fee \$12.50

\*e4-Descriptive geometry. 2 hours lectures. 2 points. Professor Harrington

6.30-7.20 p.m., Tu. and F., Room 306 Engineering. Credit IC, V. Fee \$10

e8—Specialized engineering drafting. (a) Structural drafting. (b) Machine drafting. 1 hour lecture and 5 hours drafting-room work per week. 3 points. Professor Harrington 7.20-10 p.m., Tu. and F., Room 607 Engineering. Credit V. Fee \$15

# Money and Banking, p. 7

### Music

# e34-University chorus. Professor Walter Henry Hall

8.30-10 p.m., W., Earl Hall. Fee for University students expecting credit \$5, otherwise no charge; for all others \$2 for the year. One point credit in Columbia College for the year if taken in conjunction with another course in music.

e54-Introductory harmony. 2 points. Mr. Kraft 11-12.40 a.m., S., Room 703 Journalism. Credit Ia, IV. Fee \$10

e26—Public School music. 2 points. Mr. George H. Gartland, Assistant Director of Music, New York 4-6 p.m., Tu., at 51 Seventh Avenue, Brooklyn. Fee \$10

## Negotiable Instruments, p. 7

# Philosophy

eA2-Principles of science, concepts and problems of philosophy. Lectures, recitations and individual consultations with the instructor. 3 points, Dr. Brown

7-8.15 p.m., Tu. and F., Room 307 Philosophy. Credit I, IV. Fee

e62-History of philosophy. Lectures, discussions and essays. 2 points. Dr. Cooley

4.10-5.50 p.m., W., Room 611 Journalism. Credit I, IV. Fee \$10

e80-Contemporary philosophy. 2 points. Professor Montague 7.40-9.30 p.m., W., Room 302 Philosophy. Credit I, IV. Fee \$10

# Phonetics, p. 11

# Physical Education (For men students)

eX2-Gymnastics. Dr. Elliott 8.30-9.20 p.m., M., Th., S. Gymnasium fee \$3.50. Fee for instruction \$10

eY2-Swimming. Mr Kennedy Section 1.-M., 8.30-9 or 9-9.30 p.m. Section 2.-Th., 8.30-9 or 9-9.30 p.m. Section 3.-S., 8.30-9 or 9-9.30 p.m. Gymnasium fee \$3.50. Fee for instruction \$10. e2—Hygiene and sanitation. Professor Meylan 8-9.15 p.m., Tu. and Th., Room 508 Philosophy. Fee \$15

### **Physics**

eA2—Elementary course in general physics. 3 hours lectures and recitations, with 2 hours laboratory work. 4 points. Mr. Farwell and Mr. Coleman

7.30-10 p.m., M. and Th., Room 304 Fayerweather. Credit I, IV.

Fee \$20. Open only with the consent of the instructor.

### **Politics**

e2—American government. 3 points. Professor Sait 8.20-9.35 p.m., Tu. and F., Room 401 Kent. Credit I, IV. Fee \$15

e104—Comparative politics and government. Half course. Professor Sait

11-12.40 a.m., S., Room 405 Kent. Credit II, IV. Fee \$10

## Public Speaking, p. 10

## Psychology

e2—Elements of psychology. Lectures, demonstrations, discussions and recitations. 3 points. Dr. Hollingworth
4.30-5.45 p.m., Tu. and F., Room 407 Schermerhorn. Credit I, IV.

Fee \$15. Open only with the consent of the instructor.

tee \$15. Open only with the consent of the instructor,

e4—Elements of experimental psychology. Lectures, recitations and laboratory work. 3 points. Mr. Williamson 7.30-9 p.m., Tu. and F., Room 407 Schermerhorn. Credit I, IV. Fee \$15

e142—Psychology of advertising. Half course. Lectures, demonstrations and discussions. 2 points. Dr. Strong
7.30-9.10 p.m., W., Room 407 Schermerhorn. Credit II, IV. Fee

7.30-9.10 p.m., W., Room 407 Schermerhorn. Credit II, IV. Fee

\$10

e144—Laboratory work in advertising. Half course. Dr. Strong (Hours to be arranged with the instructor) Room 407 Schermerhorn. Credit II, IV. Fee \$10

e146—Applied psychology. Half course. Lectures, demonstrations and discussions. 2 points. Dr. Strong

4.15-5.50 p.m., W., Room 407 Schermerhorn. Credit II, IV, half-course. Fee \$10

## ROMANCE LANGUAGES

### French

\*eA2—Elementary course. 3 points. Credit I, IV. Fee \$15
Sec. 1—4.30-5.45 p.m., Tu. and F., Room 511 Journalism. Dr. Alexander

Sec 2-6.10-7.25 p.m., Tu. and F., Room 511 Journalism. Mr. Forcier

Sec. 3-4.30-5.45 p.m., Tu. and F., Room 413 Havemeyer. Mr. Olinger. Given if necessary

\*eA4—Elementary course. Equivalent to the last half of course eA1. 1½ points. Dr. Farnsworth 11-12.15 a.m., S., Room 308 Philosophy. Credit I, IV. Fee \$7.50

\*eA6—Elementary course. Equivalent to the last half of course

eA2. 1½ points. Dr. Farnsworth 9.30-10.45 a.m., S., Room 308 Philosophy. Credit I, IV. Fee \$7.50

eA8—Elementary course. 6 points. Mr. Imbert 4.30-5.45 p.m., M., Tu., Th. and F., Room 405 Avery. Credit I, IV. Fee \$30. Equivalent to courses eA1-A2

\*eB2—Intermediate course—grammar, reading and composition. 3 points. Credit I, IV. Fee \$15

Sec. 1-4.30-5.45 p.m., M. and Th., Room 612 Journalism. Mr. Bi-gongiari

Sec. 2-7-8.15 p.m., Tu. and F., Room 612 Journalism. Dr. Alexander

\*eB4—Intermediate course—grammar, reading and composition. Equivalent to course eB1. 1½ points. Dr. Farnsworth 12.15-1.30 p.m., S., Room 308 Philosophy. Credit I, IV. Fee \$7.50

\*eB6—Intermediate course. More advanced than eB4. Equivalent to the last half of eB2. 1½ points. Dr. Farnsworth 2-3.15 p.m., S., Room 308 Philosophy. Fee \$7.50

e2—General introduction to the study of French literature. Composition, readings, lectures. 3 points. Dr. Muller 4.30-5.45 p.m., Tu. and F., Room 610 Journalism. Credit I, IV. Fee \$15. Open with the consent of the instructor

e4—Conversation and composition based upon the history of France. 3 points. Mr. Fortier

4.30-5.45 p.m., M. and Th., Room 707 Journalism. Credit I, IV. Fee \$15. Open with the consent of the instructor.

e6—History of French literature in the seventeenth century. 3 points. Professor Loiseaux

4.30-5.45 p.m., Tu. and F., Room 707 Journalism. Credit I, IV. Fee \$15. Open with the consent of the instructor.

e102—History of French literature in the seventeenth century. Full course. Professor Loiseaux

4.30-5.45 p.m., Tu. and F., Room 707 Journalism. Credit II, IV. Fee \$20

e104—History of French literature in the eighteenth century. Full course. Professor Loiseaux

4.30-5.45 p.m., M. and Th., Room 709 Journalism. Credit II, IV.

Fee \$20

### Italian

\*e2—Elementary course. 3 points. Professor Livingston 7-8.15 p.m., M. and Th., Room 408 Avery. Credit I, IV. Fee \$15

\*e4—Advanced course. 3 points. Professor Livingston 4.30-5.45 p.m., Tu and F., Room 605 Journalism. Credit I, IV. Fee \$15

# Spanish

\*e2—Elementary course. 3 points. Mr. Hayden 6.10-7.25 p.m., Tu. and F., Room 302 Philosophy. Credit I, IV. Fee \$15

\*e4—Advanced course. 3 points. Professor Gerig 4.30-5.45 p.m., M. and Th., Room 712 Journalism. Credit I, IV. Fee \$15

e8—Elementary course. 3 points. Mr. Hayden 7.30-8.45 p.m., Tu. and F., Room 302 Philosophy. Credit I, IV. Fee \$15

A course for students who have no knowledge of Spanish.

## Semitic Languages

\*e2—Biblical Hebrew. Elementary course. Grammar and selections from the Pentateuch and Psalms. 2 points. Mr. Margolis 4.10-5 p.m., Tu. and Th., Room 406 Philosophy. Fee \$10

e4—Biblical Hebrew. Advanced course. 2 points. Mr. Margolis 1.10-2 p.m., and 3.10-4 p.m., Th., Room 706 Philosophy. Fee \$10

e6—Jewish history and literature. 2 points. Mr. Margolis 4.10-5 p.m., Tu. and F., Room 706 Philosophy. Fee \$10

e8—Elementary Assyrian. Initial steps in Assyriology. 2 points. Dr. Vanderburgh 4.10-5 p.m., Tu. and F., Room 713 Journalism. Fee \$10

### Social Secretary

e2—Correspondence. 3 points. Miss Davis 4-5.15 p.m., M. and Th., Room 611 Journalism. Fee \$15 Open with the consent of the instructor.

## Sociology

e142—Social problems. Lectures, readings and discussions. Mr. Shenton

7.30-9.20 p.m., W., Room 603 Journalism. Fee \$10. Credit II (half course), IV

e152—Historical evolution of society. Lectures, readings and discussions. Mr. Shenton

7.30-9.20 p.m., M., Room 614 Kent Credit II, full course. Fee \$20; Credit II, half course, \$10; Credit I, IV, 2 points, Fee \$10

# Spanish, p. 18 Statistics, p. 7

# Stenography and Typewriting.

# Morning, Afternoon and Evening Classes

e2—Elementary stenography. Mr. Beygrau, Mr. Healey and an assistant. Room 601 Journalism

Sec. 1—10-11 a.m. and 1-2 p.m. (stenography). Fee \$35; 11-12 a.m. and 2-3 p.m. (typewriting). Fee \$25. M., Tu., W., Th. and F. Fee \$50 if taken together

Sec. 2-4.15-5.15 p.m. (typewriting). Fee \$15; 5.15-6.15 p.m. (stenography). Fee \$20. M., Tu., Th. and F. Fee \$30 if taken together.

Sec. 3-5.15-6.15 p.m. (typewriting). Fee \$10. 7.30-9.10 p.m. (stenography). Fee \$15. Tu. and F. Fee \$20 if taken together

Sec. 4-6.15-7.15 p.m. (typewriting), Tu. and F. Fee \$10

e4—Intermediate stenography. Mr. Beygrau, Mr. Healey and an assistant. Room 601 Journalism

Sec. 1—4.15-5.15 p.m. (typewriting). Fee \$15. 5.15-6.15 p.m. (stenography). Fee \$20. M., Tu., Th. and F. Fee \$30 if taken together

Sec. 2—5.15-6.15 p.m. (typewriting). Fee \$10. 7.30-9.10 p. m. (stenography). Fee \$15. Tu. and F. Fee \$20 if taken together

e6—Advanced stenography. Mr. Beygrau, Mr. Healey and an assistant. Room 601 Journalism

Sec. 1—10-11 a.m. and 1-2 p.m. (typewriting). Fee \$25. 11-12 a.m. and 1-3 p.m. (stenography). Fee \$35. M., Tu., W., Th. and F. Fee \$50 if taken together

Sec. 2-4.15-5.15 p.m. (stenography). Fee \$20. 5.15-6.15 p.m. (typewriting). Fee \$15. M., Tu., Th. and F. Fee \$30 if taken together

e8—Office training. Mr. Beygrau, Mr. Healey and an assistant 4.15-6.15 p.m., F., Room 601 Journalism. Fee \$10

e10—Stenotype writing. A course in the use of the stenotype will be given if called for. Hours to be arranged. Mr. Beygrau and Mr. Healey

e12—Methods of teaching stenography and typewriting. Mr. Healey 5.15-6.15 p.m., Tu. and F., Room 601 Journalism. Fee \$10

# Structural Design, p. 4

### Structural Mechanics

eX2—Elements and applications of algebra, geometry and trigonometry. Mr. Hasbrouck 6.10-7 p.m., M. and Th., Room 408 Avery. Fee \$15

\*eZ2—Elements of mechanics of materials. Professor Burnside 6.10-7 p.m., Tu. and Th., Room 407 Avery. Fee \$15

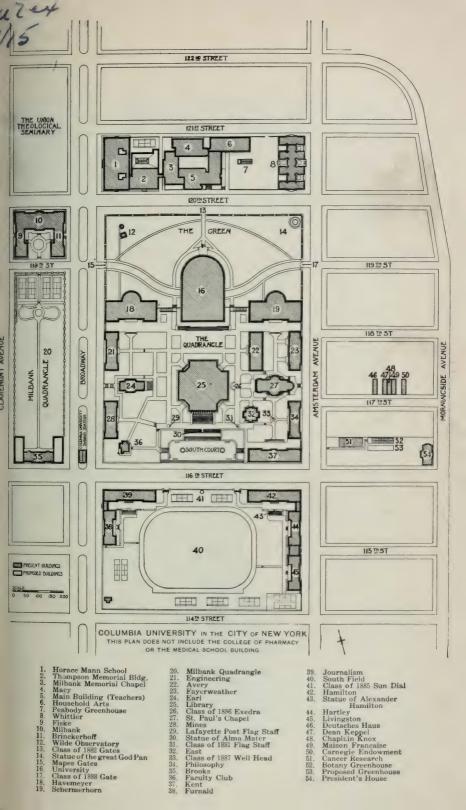
\*eZ4—Designs and details of framed structures. Professor Schroeder

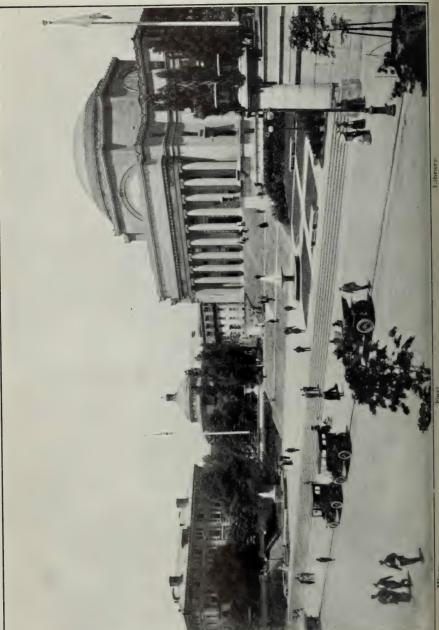
7-9.30 p.m., M. and Th., Room 607 Engineering. Fee \$25

# Surveying, p. 8

# Zoölogy

\*e2—Elementary biology and zoölogy. Lectures and laboratory. 2 points. Professor McGregor 1.30-2.30 p.m., S., Room 619 Schermerhorn. (Laboratory, 2.30-4.20 p.m., S., Room 618 Schermerhorn.) Credit I, IV. Fee \$10





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# OFFICERS OF EXTENSION TEACHING 1914-1915

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President of the University

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Professor of Latin

Director of the Summer Session and Extension Teaching

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Johnsonian Professor of Philosophy

Dean of the Graduate Faculties

Frederick Paul Keppel, Litt.D.

Dean of Columbia College

Virginia C. Gildersleeve, Ph.D. Dean of Barnard College

PAUL MONROE, Ph.D.

Professor of the History of Education

Frank Allen Patterson, Ph.D.

Assistant Professor of English
Assistant to the Director, Morningside

MILTON JUDSON DAVIES, A.B.

Assistant to the Director, Institute of Arts and Sciences

Frank Diehl Fackenthal, A.B. Secretary of the University

Frank A. Dickey, A.P. Registrar

CHARLES S. DANIELSON

Bursar

# OFFICERS OF INSTRUCTION

EUGENE E. AGGER
assistant professor, 1907-
LUTHER HERBERT ALEXANDER French
A.B., Toronto, 1883; A.M., 1885; Ph.D., Columbia, 1911; professor, University of Alberta, 1907–08; instructor, College of the City of New York, 1908–12; instructor Columbia, 1912–
HARRY M. AYRES
Matthew Gruenberg Bach German A.B., Trinity (Conn.), 1910; A.M., Columbia, 1911-
RICHARD FRANZ BACH
PIERRE DE BACOURT
FRANK PIERCE BALTZ
JESSE E. BEANS Mechanical Drawing
Assistant director, Minneapolis School of Fine Arts, 1905-07; assistant and instructor, Columbia, 1910-
DONALD RAY BELCHER
GOTTLIEB A. BETZ
A.B., Rochester, 1901; A.M., Pennsylvania, 1911; instructor in Greek and history, Wagner College, Rochester, 1903–10; University scholar in Germanic languages, Pennsylvania, 1910–11; Harrison Fellow in Germanics, 1911–13; instructor, Columbia, 1913–
Frederick Reginald Beygrau Stenography and Typewriting
South Penge Park College, London, 1831; Commercial Academy, Chemnitz, 1889; official court stenographer, Canadian Government, 1907; instructor of shorthand and typewriting, West Side Y. M. C. A., and Christian Association of Columbia, 1908-11; lecturer in commercial education, Columbia, 1910; principal, Millburn High School (N. J.), 1910-11; head commercial department, White Plains High School (N. Y.), 1911-12; instructor, High School of Commerce, 1912-
DINO BIGONGIARI French
A.B., Columbia, 1902; assistant in Latin, 1904-07; lecturer, tutor, instructor and assistant professor of Romance Languages, 1907-

A.B., Columbia, 1907; M.D., 1911; Ph.D., 1912; lecturer, educational psychology,

Psychology

English

1913-; visiting neurologist, New York City Children's Hospitals and Schools; clinical assistant, New York Neurological Institute; physician to "Clearing House" for mental defectives, New York Post-Graduate Medical School and Hospital.
ORLANDO CURTIN BOWES
DAVID E. BOYCE
WILHELM ALFRED BRAUN
HAROLD CHAPMAN BROWN
CHARLEE HOWARD BURNSIDE
GARY N. CALKINS Zoölogy  B.S., Massachusetts Institute of Technology, 1890; Ph.D., Columbia, 1898; tutor, instructor, adjunct professor, and professor, Columbia, 1894-
ROBERT P. CALVERT
ROBERT E. CHADDOCK

EUNICE J. CLEVELAND . . . . . . . . . . . Secretarial Correspondence A.B., Michigan, 1910; instructor, University School of Cincinnati, 1910-13 instructor, Extension Teaching, Columbia, 1913-

Donald L. Clark . . . . . . . .

A. B., De Pauw, 1911; A.M., Columbia, 1912-

HELEN LOUISE COHEN
A. JAY CROSS  D.O.S., New York Institute of Optometry, 1907; member of the Optical Society of the City of New York; president, Optical Society of the State of New York, 1897-1900; president, American Association of Opticians, 1900-01; honorary life member of scientific section of the American Association of Opticians, 1909. Author of A System of Ocular Skiametry.
RICHARD DUDLEY CURRIER
Walter E. Curt Mathematics Student, Columbia, 1911-; instructor, Extension Teaching, 1913-
MILTON JUDSON DAVIES. Assistant to Director, Institute of Arts and Sciences A.B., Chicago, 1903; Chautauqua Institution, 1900-03; supervisor of lectures and concerts, Brooklyn Institute of Arts and Sciences, 1904-05; educationa director, Central Branch, Brooklyn Young Men's Christian Association, 1906-13.
FAYETTE BROWN DOW English A.B., Amherst, 1904; LL.B., Columbia, 1909.
BERNARD OGILVIE DODGE
DANIEL B. DUNCAN
EDWARD S. CLLIOTT
JOHN BATES EYSTER
W. O. FARNSWORTH
HERMON WALDO FARWELL
JAMES KIP FINCH
GILBERT DUDLEY FISH

1913; assistant in civil engineering, Columbia, 1913-14.

A.B., Williams, 1909; A.M., Columbia, 1910; Ph.D., 1912; assistant and in-

. Chemistry

HARRY LINN FISHER .

structor, 1910-

JEFFERSON B. FLETCHER .

English

A.B., Harvard, 1887; A.M., 1889; professor, Columbia, 1904–
EDWARD JOSEPH FORTIER
DIXON RYAN FOX
ALLEN CAMERON FRASER
J. Montgomery Gambrill
CHARLES ROBERT GASTON
JOHN L. GERIG
LAURA RUSSELL GIBBS Library Training B.L.S., Illinois, 1902; loan desk assistant, Illinois Library, 1898–1902; cataloguer, Harvard Library, 1902–03; assistant, Radcliffe Library, 1904–08; cataloguer Brown Library, 1908–13; reviser, Columbia Library, 1913–
RALPH W. GIFFORD
RICHARD J. H. GOTTHEIL
JESSE M. GRAY
ROSCOE GUERNSEY Latin  A.B., Union, 1896; Ph.D., Johns Hopkins, 1901; tutor and instructor in classical philology, Columbia, 1903-
ROBERT MURRAY HAIG
HENRY MARION HALL

Student, Royal Academy of Music, London, 1878-82; organ pupil of Dr. Charles Steggall; theory with H. C. Banister; organist and choirmaster, St. Luke's Church, Germantown, Philadelphia, 1885-90; St. Peter's, Albany, 1890-92; Heavenly Rest, New York, 1893-97; St. James's Church, New York, 1897-1913; conductor of Brooklyn Oratorio Society, 1893-; conductor of University Chorus, Columbia,

Music

1910-; professor of choral and church music, 1913-
WILLIAM HALLER
A.B., Amherst, 1908; A.M., Columbia, 1911; instructor, Amherst, 1908–09 assistant and instructor, Columbia, 1909–
ERNEST M. HALLIDAY
A.B., Michigan, 1904; LL.B., 1906; A.M., Columbia, 1913; instructor, Illinois 1906-07; associate, 1907-13; instructor, Extension Teaching, 1912-
B. Perry Hamilton Electrical Engineerin
E.E., Columbia, 1913; assistant, 1913-
CLAYTON HAMILTON Englis
A.B., Brooklyn Polytechnic Institute, 1900; A.M., Columbia, 1901; tutor 1901-04; dramatic editor, The Bookman and Vogue; author of Theory of the Theatre fourth edition, Studies in Stagecraft, etc.
WILLIAM E. HARNED Stenography and Typewritin
A.B., Cornell, 1907; assistant principal, Cando High School, North Dakota 1907-08; instructor of shorthand and typewriting, West Side Young Men's Christian Association, New York, 1910-11; principal, Short Hills High School, New Jersey, 1911; principal Young Men's Christian Association Day School, 1912-13 instructor, summer session, Columbia, 1911-; instructor, Extension Teaching Columbia, 1913-
ROBERT A. HARPER
A.B., Oberlin, 1886; A.M., 1891; Ph.D., Bonn, 1896; professor of Greek an Latin, Gates College, 1886-88; instructor in academy, 1889-91; professor of botan and geology, Lake Forest, 1891-98; professor of botany, Wisconsin, 1898-1911 Torrey professor of botany, Columbia, 1911-
CHARLES ALONZO HARRIMAN Architectur
Massachusetts Institute of Technology, 1880-91; instructor, associate an assistant professor, Columbia, 1891-
THOMAS H. HARRINGTON Mechanical Drawin
C.E., Columbia, 1889; assistant, tutor, instructor and assistant professor, 1894
Paul C. Haeseler
B.S., Chicago, 1911; assistant, Columbia, 1911-; instructor, Adelphi, 1913-14
PHILIP MESERVE HAYDEN
A.B., Tufts, 1903; A.M., Columbia, 1913; instructor, Tufts, 1903-10; professor 1910-14.
CARLTON HAYES
A.B., Columbia, 1904; A.M., 1905; Ph.D., 1909; lecturer and assistant professor 1907-; instructor summer session, Chicago, 1911.
HORACE G. HEALEY
FREDERICK W. HEHRE
E.E., Columbia, 1908; tutor and instructor, 1909-

A.B., Columbia, 1893; A.M., 1894; tutor, instructor, adjunct professor, associate

A.B., Columbia, 1901; A.M., 1902; assistant, lecturer, tutor, instructor and

A.B., Eureka, 1900; teacher, 1901-02; principal, 1902-03; principal of school of F. C. M. S., Cuba, 1904-08; associate, Carnegie Institution of Washington, Department of History, 1911-13; associate, California summer session, 1913; lecturer,

professor, 1896-; registrar, 1908-13.
FREDERICK WILLIAM JUSTUS HEUSER .

assistant professor, 1902-

Columbia, 1913-14.
HARRY L. HOLLINGWORTH .

ROSCOE R. HILL

HARRY L. HOLLINGWORTH
A.B., Nebraska, 1906; Ph.D., Columbia, 1909; assistant, tutor, instructor and assistant professor, 1907-
GUY RICHARD HUBBART Advertising and Salesmanship  A.B., Illinois, 1906; editorial and feature writer for The Dry Goods Economist; chief of instruction in the advertising courses of the Economist Training School; ad critic for The Dry Goods Economist; expert on copy, technical features of display and arrangement and sales campaigns; member of the Advertising Men's League of New York City.
C. CARL HUGHES Bookkeeping Valparaiso University, 1896-98; instructor, High School of Commerce, 1907-; B.C.S. New York University, 1911; lecturer, Chautauqua Institution summer school 1913-
HARVEY HATCHER HUGHES English
A.B., A.M., North Carolina, 1907-09; instructor, 1908-09; assistant, Columbia, 1911-12; instructor in Extension Teaching, 1913-
EDWARD F. HUMPHREY
A.B., Minnesota, 1903; A.M., Columbia, 1909; Ph. D., 1912; instructor, 1911-
ARTHUR HUNTER Insurance
Fellow of the Faculty of Actuaries, Scotland, 1892; associate of the Institute of Actuaries, England, 1893; fellow of the Actuarial Society of America, 1903; vice-president, 1912; actuary of the New York Life Insurance Company.
LOUIS IMBERT French
A.B., Missouri, 1906; A.M., 1907; assistant, Illinois, 1908-09; Harrison Fellow, Pennsylvania, 1909-10; instructor, Columbia, 1911-
Adam Leroy Jones
A.B., Williams, 1895; Ph.D., Columbia, 1898; assistant, lecturer and tutor, 1898-1905; preceptor, Princeton, 1905-09; chairman, Committee on Undergraduate Admissions, assistant professor and associate professor, Columbia, 1909-
HELEN REX KELLER Library Training  B.L., Smith, 1899; A.M., Columbia, 1913; New York State Library School, 1899-1901; Boston Public Library, 1901-02; Iowa State Library, 1902-04; Utica Public Library, 1904-05; Colgate University Library, 1905-06; Drexel Institute, assistant librarian and instructor in the Library School, 1906-09; classifier and reviser, Columbia, 1909-13; librarian, School of Journalism, 1913-
BENJAMIN BURKS KENDRICK
B.S., Mercer, 1905; A.M., Columbia, 1911; instructor in history and English, Norman Institute, Norman Park, Georgia, 1905-06; instructor in history and English, Industrial High School, Columbus, Georgia, 1906-09; Schiff Fellow in Polit-

ical Science, Columbia, 1910-11; instructor, 1912-

EDWARD T. KENNEDY
S. Bernard Koopman
WILLIAM JACOB KRAFT
George Kriehn Fine Arts
A.B., William Jewell, 1887; Ph.D., Strassburg, 1892; instructor in history, Johns Hopkins, 1892-94; assistant professor of history, Leland Stanford Junior, 1894-98; art editor, New International Encyclopedia, 1902-; staff lecturer in the history of art, Cooper Union, 1907-; preceptor in art and archaeology, Princeton, 1911-12; lecturer in the history of art, Extension Teaching, 1912-
DYER B. LAKE
EUGENE H. LESLIE
LOUIS LEVINE
ANGELO LIPARI French A.B., Columbia, 1911; A.M., 1912; lecturer, Toronto, 1912-
A. ARTHUR LIVINGSTON
HENRY LOGAN
LOUIS AUGUSTE LOISEAUX French Certificat d'études primaires supérieures, Académie de Dijon, 1887; brevet d'instituteur, 1887; B. ès S., University of Dijon, 1894; tutor, instructor, adjunct professor, assistant professor and associate professor, Columbia, 1892-
Frederick Lownhaupt
New York University (Finance and Commerce), 1901-05; secretary to vice-president, Electric Properties Company; assistant secretary for George Westinghouse; bond market editor of Wall Street Journal. Author of Investment Bonds, What an Investor Ought to Know, and editor of the bond department of The Magazine of Wall Street.
ELIAS MARGOLIS

HOWARD L. McBAIN	D.
CHARLES T. McFARLANE	ate 001 08
JAMES HOWARD McGregor  B.S., Ohio State, 1894; A.M., Columbia, 1896; Ph.D., 1899; assistant, tute instructor, assistant professor and associate professor, 1897-	
FRANK J. McMackin School of Pedagogy, Philadelphia, 1909; Philadelphia public schools, 1909–1 B.S., Columbia, 1912; A.M., 1913; assistant, Columbia, 1913–	
GEORGE L. MEYLAN	rer
THEODORE C. MITCHILL	
VILLIAM PEPPERELL MONTAGUE	9;
President, American Association of Public Accountants; member, New Yor State Society of Certified Public Accountants; member, Pennsylvania Institute of Certified Public Accountants; author of Auditing, Theory and Practice; edito American Business Manual; instructor, Pennsylvania, 1904-07; New York, 1906, 08; member of the firm of Lybrand, Ross Brothers and Montgomery, Certifie Public Accountants; assistant professor, Columbia, 1914-	of r,
A.B., Illinois, 1905; M.S.A., Cornell, 1907; fellow in agriculture, 1907-08; Ph.D. 1909; director, New York State School of Agriculture, Alfred, N. Y., 1908-11 professor, Columbia, 1911-	٠,
ENRI FRANCOIS MULLER	
AND SAVILLE MUZZEY  A.B., Harvard, 1893; B.D., New York, 1897; Ph.D., Columbia, 1997; associate and associate professor, 1911-	_
RTHUR C. NEISH  A.B., Queens, 1898; A.M., Columbia, 1900; Ph.D., 1901; assistant, tutor, in structor and assistant professor, 1900-	

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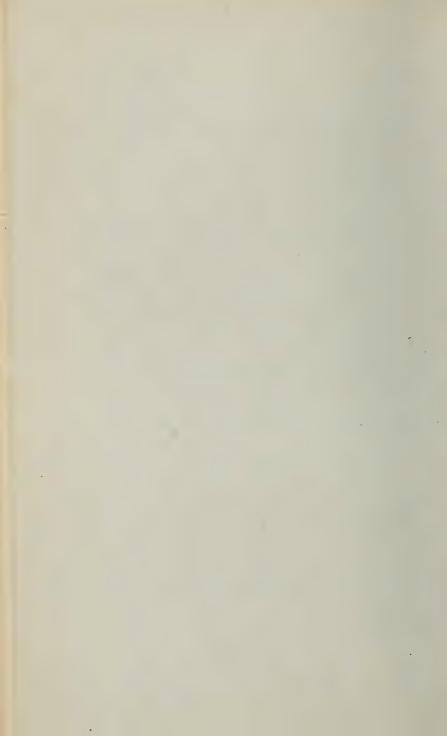
J. LEE NICHOLSON
FREDERICK S. NOWLAN
HENRI CÉSAR OLINGER French
B.S., Columbia, 1909; assistant, Lehigh, 1912–13; instructor in Extension Teaching, Columbia, 1913–
CHARLES PACKARD Zoölogy
B.S., Syracuse, 1907; M.S., 1908; instructor in biology, Williams, 1908-10; assistant in zoölogy, Columbia, 1910-
Frank Allen Patterson, Assistant to Director, Morningside. English A.B., Syracuse, 1904; A.M., Columbia, 1907; Ph.D., 1911; assistant, Syracuse, 1903-04; instructor in summer school, Syracuse, 1904; instructor, Blees Military Academy, Macon, Missouri, 1904-06; associate, Illinois, 1911-12; instructor and assistant professor, Columbia, 1912-
SAMUEL WHITE PATTERSON
ALBERT T. POFFENBERGER, JR
ALLEN WILSON PORTERFIELD
MAURICE J. PRÉVOT
JOHN DYNELEY PRINCE
A.B., Columbia, 1888; Ph.D., Johns Hopkins, 1892; fellow, 1890-91; fellow by courtesy of Johns Hopkins, 1891-92; professor, New York, 1892-1901; dean of graduate school, 1895-1901; fellow, New York Academy of Sciences, 1904; fellow, American Association for the Advancement of Science, 1912; professor, Columbia, 1902-
CHESTER ALBERT REEDS
B.S., Oklahoma, 1905; M.S., Yale, 1907; Ph.D., 1910; instructor in mineralogy and petrology, Oklahoma, 1908; lecturer in geology, Bryn Mawr, 1908-1910; associate, 1910-12; assistant curator of geology and invertebrate paleontology, American Museum of Natural History, 1912-
GERARD ALSTON REICHLING

KATHERINE C. REILEY . . . . . . . Latin and Greek A.B., Vassar; A.M., Columbia, 1902; Ph.D., 1909.

A.B., Toronto, 1902; A.M., 1903; Ph.D., Columbia, 1911; lecturer in public law and in history, 1909–11; instructor in public law, 1911; assistant professor of politics, 1912–
ROGER B. SAYLOR
FRANK CHARLES SCHROEDER Structural Mechanics B.S., Wisconsin, 1907; C.E., 1910; acting assistant professor of civil engineering, Washington, 1911–12; instructor in mechanics, Columbia, 1912–13; assistant professor, 1913–
HENRY H. L. SCHULZE
ROBERT LIVINGSTON SCHUYLER
HERBERT N. SHENTON
FRANK DEMPSTER SHERMAN Architecture Ph.B., Columbia, 1884; instructor, adjunct professor, professor, 1889–
JAMES THOMSON SHOTWELL
EDWIN EMORY SLOSSON
EDWARD R. SMITH Fine Arts A.B., Amherst, 1876; reference librarian, Avery Library, Columbia, 1895-
James Powell Cocke Southall
HARRISON ROSS STEEVES
WILLIAM H. S. STEVENS
ELLERY C. STOWELL

ALGERNON TASSIN
RUPERT TAYLOR
CALVIN THOMAS
Ashley H. Thorndike
WILLIAM P. TRENT
Samuel Marion Tucker ,
CARL VAN DOREN
NEWMAN D. WAFFLE
James F. Walker
S. EUGENIA WALLACE St. Mary's Hall; Columbia University Library; supervisor, filing system, Rock Island-Frisco Lines, 1907–09; Rock Island Lines, 1910–12; supervisor filing system, Bond Department, Guaranty Trust Company, 1913–
HAROLD V. WALSH
ARTHUR WARE
FRANK EDWIN WARD.  Pupil of Edw. MacDowell (theory), Aug. Spanath (piano), C. Rubner (orchestration), W. C. Macfarlane (organ); Mosenthal fellow, Columbia, 1902–03; organist, 1902–13; organist, Church of the Holy Trinity, 1906–; organist, Temple Israel, 1902–; associate in music, Columbia, 1909–; associate, American Guild of Organists.
RAYMOND WEEKS

GERALD WEEMAN
LOUIS R. WELZMILLER
OSCAR HELMUTH WERNER
HERBERT L. WHITTEMORE
BLANCHE COLTON WILLIAMS
HENRY PARKER WILLIS
SAMUEL LEE WOLFF
FREDERIC A. WOLL
I. MAURICE WORMSER A.B., Columbia, 1906; LL.B., 1909; admitted to New York Bar, 1908; engaged in active practice, 1908-11; assistant professor, Illinois, 1911-13; professor, Fordham, 1913-
THEODORA ETHEL WYE Diploma, Michigan State Normal College, 1900; B.S., Columbia, 1907; assistant in Latin and Greek, Columbia, 1909-12; instructor Extension Teaching and summer session, 1910-



#### INTRODUCTORY

The statutes of the University (Section 230) define Extension Teaching as "instruction given by University officers and under the administrative supervision and control of the University, either away from the University buildings, or at the University, for the benefit of students unable to attend the regular courses of instruction."

#### Students

Courses in Extension Teaching are planned for two classes of students,—first, men and women who can give only a portion of their time to study and who desire to pursue subjects included in a liberal education of the character and grade of a college or professional school, but without any reference to an academic degree,—second, those who look forward to qualifying themselves to obtain in the future academic recognition, involving acceptance of the work which they may satisfactorily complete in Extension Teaching.

Students who are duly admitted to Extension courses but are not candidates for a degree or diploma are termed *non-matriculated* students. Students who have completed the requirements for admission and have been formally admitted by or in behalf of the Faculty concerned as candidates for a degree or diploma, are termed *matriculated* students.

### Courses of Instruction

Under the direction of the University Council courses are offered in Extension Teaching which count toward the degree of A.M.

Regular courses of instruction are offered in Extension Teaching which in many instances are coördinated so as to form at least the first years of collegiate and professional work, thus providing in the evening at Morning-side Heights, and elsewhere, courses in subjects which are generally offered in the Freshman, Sophomore and Junior years of college, so that students may qualify themselves for admission with advanced standing to Columbia and Barnard Colleges or other institutions as candidates for the degrees of A.B. and B.S.

There are also offered at Morningside Heights in the evening subjects which are required of students of the Schools of Mines, Engineering and Chemistry, so that a student may pursue some special line of scientific study or prepare himself for advanced study in these schools. Beginning

with September, 1914, courses in these schools will be open only to those who have had a preliminary course of three years in Columbia College or the equivalent. This preliminary collegiate training may be taken in part or in full in Extension Teaching in the evening by students engaged in business during the day. See pages 9-12.

Evening courses are offered in architecture at Morningside Heights which correspond to courses of the Columbia University School of Architecture. See pages 6 and 21.

Day and evening courses in Commerce, Accounts and Finance, forming a three-year course leading to a certificate in commerce and preparing for the state examination for the certificate of Certified Public Accountant are given at Morningside Heights. A special circular describing these courses in detail will be mailed upon request. See also pages 28 following.

A series of courses intended to equip students for the position of secretary is also offered. The completion of these courses will require three years for high school graduates, and at least one year for college graduates. These courses are carefully described in a special circular which will be mailed on application. See also page 74.

Many courses are offered which aid a student to prepare for the Schools of Law, Medicine and Journalism or to complete his preparation for Columbia College. See pages 6, 7, 8, and 12.

A two year course in practical optics is offered in cooperation with the Department of Physics for the special training of those who expect to become optometrists. A special circular will be mailed upon request. See also page 63.

Courses are offered in Agriculture for those who desire special work in that subject.

A large number of other courses in varied subjects is given late in the afternoon and on Saturday which repeat those in liberal studies offered in the Colleges of the University. These are given in the same manner and often by the same instructors as the regular courses. In most instances university credit is granted.

Numerous courses are given at various centres. These are either regular courses of collegiate grade or short lecture courses without academic credit.

Lecture-study courses in certain subjects forming fifteen or thirty lectures alternating with quiz or conference hours are given at Morningside Heights and at centres when requested.

Centres for the study of choral music are maintained at Morningside Heights and Brooklyn, and large choral concerts are given during the year.

The Department of Extension Teaching maintains also the Institute of Arts and Sciences, described on page 13.

### Registration

Students who expect to attend at Morningside Heights are required to register at the office of the Registrar, 201 East Hall, 116 Street and Amsterdam Avenue. A student in Extension Teaching will register for one half-year and is required to renew his registration in person at the beginning of the second half-year. Fees must be paid at the time of registration. Students will be allowed to attend one lecture before registration and payment of fees. Registration for the first half-year begins September 16; for the second half-year January 28. The Registrar's office in addition to the regular daily hours (9 a.m. to 5 p.m.) will be open (except on Saturday), from September 21 to October 2, 1914, and from January 28 to February 12, 1915, from 7 to 9.30 p.m., and thereafter from 7 to 9 p.m. The Saturday hours are from 9 to 12. Payment of fees should be made at the office of the Bursar in the same building. Students intending to take courses in any centre will register at that centre in accordance with instructions given in the statements introductory to these courses.

Candidates for admission as matriculated students will be permitted to register provisionally subject to the presentation of satisfactory credentials. Record of attendance will date for matriculated students from September 24, for the first term, and from February 3, 1915, for those entering in the second term.

entering in the second term.

A matriculated student is expected to conform to the rules for registration of the college of which he is a member.

Matriculated students in the various schools of the University will be allowed to attend courses in Extension Teaching in accordance with the regulations of the several schools; they must, however, register and pay the fees in the same way as other students in Extension courses.

Students should avoid assuming too heavy a program. Those working for credit will not be allowed to register for more than eight points in each half-year without securing the consent of the Director.

### Fees

All students, matriculated or non-matriculated, admitted to Extension courses, must pay at the time of registration the fees determined by the Administrative Board. The fees for Extension courses are determined as a rule at the rate of \$5 per point, i.e., for one hour per week of classroom work, or two hours of laboratory or drawing-room work, through a half-year. All new students must pay a registration fee of \$5, which is payable but once in the University.

Unless otherwise directed, students must pay all fees at the office of the Bursar. This office is open daily from 9.30 a.m. to 3.30 p.m.; Saturday morning from 9 to 12. The office will also be open every evening from 7 to 9 p.m. (except Saturday) from September 21 to October 9, 1914; from October 12 to 30, on Monday and Friday evenings only. It will also be

open every evening from 7 to 9 p.m. from January 28 to February 12, 1915; from February 15 to 26, on Monday and Friday evenings only.

Fees must be paid before entering upon the course.

Cards of admission indicating that the student has properly registered and paid his fees will not be sent to the instructor until such payment is made. The fees and points as stated with the various courses are for the half-year.

After the second Saturday following the opening of either half-year, no reduction or return of fees will be made to persons who discontinue any course or courses for which they have registered. Exception to this rule may be made in the case of those who, because of serious personal illness certified to by a physician of reputable standing, are obliged to withdraw entirely from all of their courses. In considering such applications the student will be regarded as having withdrawn upon the date on which the Registrar receives from him notice of his withdrawal, and any refund will be reckoned from that date. In the case of new students who enter for the first time after the second Saturday, one week from the time of first registration will be allowed for arrangement of program. Thereafter no refunds will be granted.

A student desiring to add a course after the second Saturday of either half-year will be compelled to pay a fee of \$1.

Students in courses in local centres will pay either the fee arranged by the local centre or the usual fees described above. Students will pay fees to the treasurer of the local centre unless otherwise directed. Extension students taking courses in local centres who desire to receive credit for their work must fulfill all the requirements of matriculation described above.

#### Admission

No examination is required for admission to courses offered in Extension Teaching, but students must satisfy the instructors concerned that they can pursue the courses with advantage. It is expected that prospective students in all collegiate and professional courses shall have had a full secondary school education. The courses are open, unless it is otherwise stated, both to men and women. Admission to a course is finally determined by the Director according to the qualifications of the student, and the privilege of attendance upon a course which the student is found unfitted to pursue with advantage will be withdrawn.

## Privileges

Students taking six points each half-year have the privileges of the Library and, in the case of men, the University Gymnasium. The privilege of residence in the dormitories is limited with Extension Teaching students to those in good standing pursuing programs aggregating not less than ten points each half-year. Women students in Extension Teaching

may reside in Whittier Hall under certain conditions in regard to the amount of work taken.

Attention is called to the restaurant service at the University Commons maintained for the use of students. Dining-rooms for men and women are located in University Hall in which meals may be obtained at moderate rates.

A rest room for women students is located on the first floor of Philosophy Hall, open in the morning and afternoon.

#### Office

The office of Extension Teaching is Room 306 Philosophy Hall. Full information as to this department may be obtained at this office, which is open from 9 to 5 daily, Saturday 9 to 4. The office will be open in the evening, except Saturday, from 7.30 to 9.30, from September 14 to October 9 and from January 28 to February 9, 1915. When the office is not open, students are referred to the office of the Registrar, East Hall.

### Location

Collegiate and professional courses will be given at Columbia University; in the School Administration Building, Trenton; in the William L. Dickinson High School, Jersey City, and in the Paterson High School, Paterson. New Jersey; in the Bridgeport High School, Bridgeport, Conn., and wherever classes sufficiently large are formed.

The most convenient means of access to the University are the Subway (Broadway Branch) to 116 Street, Columbia University Station; or the Sixth or Ninth Avenue Elevated to 110 Street Station, or 116 Street Station; and Broadway or Amsterdam Avenue surface lines.

### Calendar and Hours

Columbia University opens on September 23 and Extension courses begin Thursday, September 24. The academic calendar calls for thirty weeks of actual class work. The examination period for the first half-year begins January 25. The second term will open February 3. The examination period for the second half-year begins May 24. The examinations are given in the hours usually assigned to recitations and lectures. The calendar for Extension Teaching is the academic calendar of the University, except in regard to examinations. There will be no classes in Extension Teaching on the following days: Election Day, November 3; Thanksgiving Day and the two days following (November 26, 27 and 28): December 21 to January 2, inclusive; February 22; April 1 to 5, inclusive; May 31. There will be classes on February 12. See page 83.

Extension courses are usually given in the afternoon after four o'clock, in the evening of every week day and on Saturday.

#### Architecture

Columbia University offers at night courses in architecture which are equivalent practically to three years of the day curriculum. It will therefore be possible for a student to complete the undergraduate work of the School of Architecture by taking courses at night supplemented later, after entrance requirements have been satisfied, by one year of day study. A typical schedule follows.

## First Year

First Half Second Half
Architecture e1 Architecture e2
Architecture e5 Architecture e8
Architecture e71 Architecture e72

### Second Year

Architecture e31 Architecture e32
Architecture e121 Architecture e75 or 61\* Architecture e76 or 62\*

\*Proficiency in e61 will make it possible to complete e62 in first term, and e64 may then be undertaken without additional fee.

#### Third Year

Architecture e9 Architecture e10
Architecture e123 Architecture e33
Architecture e34
Architecture e63†
Architecture e64†

†Proficiency in e63-e64 will make it possible to undertake e65-e66 without additional fee.

### Fourth Year

Architecture e15
Architecture e35
Architecture e36
Architecture e65
Architecture e66
Fine Arts Arch. e41
Fine Arts Arch. e91
Fine Arts Arch. e92

This schedule does not include water color drawing, life drawing, theory of architecture, structural design, stereotomy, thesis, mechanics, advanced algebra, analytical geometry and calculus. The last three of these subjects may also be taken in Extension Teaching. (See Mathematics el, e4, e15–16.) All of these courses may be covered in one year's residence in the School of Architecture if advanced algebra and analytical geometry have been passed. It should be noted that credit depends not upon points, but upon courses completed.

#### Baccalaureate Degrees

It is possible for a student to prepare himself for admission to the senior class of Columbia College by studying in Extension Teaching at night.

The last year must be taken in residence during the day. Since the possible number of combinations of subjects leading to the degree of A.B. or B.S. is large, it is not feasible here to attempt to outline a fixed collegiate course. The student should consult the Announcement of Columbia College in regard to required subjects and electives. The following schedule, based upon the usual entrance offering, is given merely as a suggestion of the general sequence of studies recommended for those working for a degree. Assistance in arranging programs may be secured in the office of the Director, 306 Philosophy Hall.

The length of time allotted below may be considerably shortened by electing evening courses in the Summer Session. Occasionally students who are working only a portion of the day may assume a heavier program than is given below, but those who are employed throughout the day are cautioned against electing too many subjects.

First Year	Third Year	
College Points	College Points	
English eA1–A26	Philosophy4	
Modern Language 6	History eA1-A2 6	
Mathematics 4	English e17–18 4	
	Modern Language 2	
16		
a 1 **	16	
Second Year	Fourth Year	
English eB1–B2 4	English e23–24 4	
Philosophy eA1–A2 6	Zoōlogy e1-2 4	
Modern Language 6	Economics e1–2 6	
_	Politics e1–2 6	
16		
	20	
Fifth	Year	
	College Points	
Modern Language.	6	
Mathematics	6	
Science		
	20	
Total	88	
College Entrance Course		

# College Entrance Course

Mature students who are unable to attend a secondary school and other persons who are engaged in business throughout the day may prepare themselves for college by pursuing courses in Extension Teaching. These courses are not intended for persons under eighteen. The following schedule is suggested for those who desire a complete training in subjects required for college entrance. Students may elect the complete course or only such classes as they may need.

In order to count any course in Extension Teaching toward admission candidates must, before beginning the course, secure written permission from Professor A. L. Jones, Chairman of the Committee on Undergraduate Admissions; except candidates for admission to Barnard College who must secure written permission from the Dean of Barnard College.\*

First Year	Second Year	
English eW1-W2	English eX1-X2	
German eA1-A2	German eB1–B2	
or	or	
French eA1-A2	French eB1-B2	
or	or	
Latin eX1-eX2	Latin eY1-eY2	
Mathematics eX1	Mathematics eAl	
(Algebra)	Physics eA1-A2	
Mathematics eY2	Chemistry eA1	
(Plane Geometry)	Mathematics eA2	
	Elective subjects	

#### Third Year

English eY1-Y2 History eX1-eX2 or Freehand Drawing or Latin eY3-eY4 Elective subjects

A complete list of courses given in Extension Teaching which may be offered for entrance credit follows:

Botany e1–2, for botany.
Chemistry eA1 or eA2, for chemistry.
English eW1–W2, for English grammar.
English eX1–X2, for English a.
English eY1–Y2, for English b.
French eA1–A2, for elementary French.
French eB1, for intermediate French.
German eA1–A2, for elementary German.
German eB1–B2, for intermediate German.
History eX1, for History d.
History eX2, for History a.
Latin eX1–X2, for second-year Latin, Latin 3.
Latin eY1 or eY8, for Vergil, Latin 5.

<sup>\*</sup>While work done in university extension courses is not primarily accepted in lieu of entrance examinations to Barnard College, entrance conditions may be removed by a grade of at least C, subsequently obtained in the appropriate extension courses. In exceptional cases, for reasons of weight, the Dean may grant permission to a student to count an extension course for entrance credit, without her having taken an entrance examination in the subject.

Latin eY3, for Cicero, Latin 4.

Latin eY5 or eY6, for advanced Latin prose composition, Latin 6.

Mathematics eX1 or eX2, for elementary algebra.

Mathematics eY1 or eY2, for plane geometry.

Mathematics eA1, eA3, e1 (any two), for advanced mathematics.

Mechanical Drawing eW1, for drawing.

Physics eA1-A2, for elementary physics.

Spanish e1-2, for elementary Spanish.

Zoölogy e1-2, for zoölogy.

#### Commerce

Columbia University through its Extension Teaching Department offers day and evening courses in Commerce, Accounts and Finance. See page 28.

The object of these courses is to give a thorough training for those who desire to enter upon a business career immediately after leaving high school, and also to provide for the college student instruction in the principles of business and a more exact knowledge of commerce and finance. The intention is also to prepare students for the examinations for the certificate of Certified Public Accountant as well as to give a special training for business.

At the close of each half-year students will receive from the Registrar a report of standing, and those who have completed the course in a manner satisfactory to the Administrative Board will receive at the close of three years a certificate signed by the Director of Extension Teaching. In order to be eligible for a certificate covering the entire course a student must secure 48 points. These courses are described in detail in a special circular which will be mailed upon request.

The courses in Commerce are given at Morningside Heights, 116 Street and Amsterdam Avenue, adjoining the 116 Street Station of the Broadway Branch of the Subway.

# Engineering Courses

In taking classes in engineering and allied subjects in Extension Teaching a student may adopt one of two methods in arranging his studies.

(1) He may select only the class or classes in which he is especially interested, and which will be of most immediate assistance to him in his present work. In every case he must be careful that he possesses all the prerequisites to each course he pursues. Extension Teaching offers many classes of this nature, planned especially for mature students already engaged in engineering work and at liberty to devote only a few evenings a week to professional study. Such courses do not in themselves lead to any degree, though some of them bear credit applicable to degrees, when

other conditions have been fulfilled, as stated below. (2) He may plan his work in such a way that when supplemented by day attendance, after having completed satisfactorily the entrance requirements, it will lead ultimately to a degree in engineering. No degree is given for work taken exclusively in the evening.

Beginning this fall a student desiring to matriculate in the Schools of Mines, Engineering and Chemistry will be required to present, in addition to the regular four years of the preparatory school, at least three years of collegiate work. The following excerpt from a recent circular issued by these schools will give an idea of the new requirements.

"Beginning in September, 1914, the requirements for admission to the professional work in Mines, Engineering and Chemistry, will be increased so as to require of candidates for admission not only a broad foundation in Mathematics, Chemistry and Physics, but training in English, Modern Languages and in the fields of History and Political Science. The new professional course will be three years in length.

The purpose of this important change is to offer better and broader training for students of engineering, and to place the instruction in these professional subjects upon the same university plane as the instruction in law and medicine. The recent rapid development of engineering practice, the wider social and public recognition now given to the engineering profession and the frequent demands that men in executive and administrative posts shall have had an engineering education, make it imperative that the engineer of the future shall be a broadly educated professional man and not merely a technical expert. In order to insure this it is necessary that the future engineer shall widen his intellectual outlook by continuing his general education considerably beyond the limits of the ordinary high school course. Distinguished engineers among the alumni of Columbia University are already sending their sons through a college course as a preliminary to entering upon the professional study of engineering. At the present time, even before the proposed new system is in operation, fully one hundred students in Columbia University are taking advantage of the existing opportunity to combine a college and engineering course covering six years of study."

Extension Teaching has provided a schedule whereby a student by studying in the evening can complete the collegiate preparation mentioned above. He will then be allowed to enter the Schools of Mines, Engineering and Chemistry, provided always that he has satisfied the requirements in regard to the work of the preparatory school. The collegiate course, outlined below, is that recommended by the Faculty of Applied Science in Columbia University. In order to avoid conflicts the subjects should be taken in the order suggested.

# FIVE YEAR COLLEGIATE SCHEDULE

# First Year

First Half         English eA1       3         Mathematics e1       2         French e1       3         Elective       2	Second Half           English eA2.         3           Mathematics e4.         2           French e2.         3           Chemistry e6.         5					
10	13					
Second	Second Year					
History eA1	History eA2					
Third						
Chemistry e63       5         English eB3       3         Drafting e3       3	[Physics e6					
Elective	Elective 4					
13	10					
Fourth	Year					
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	[Physics e8					
13½	13½					
Fifth Year						
Economics e1	Politics e4					
Mineralogy e1         3           Mathematics e17         3	Mechanics e2         3           Mathematics e18         3           Civil Engineering e2         2					
Elective 3	Elective					
12						

Students desiring to secure a baccalaureate degree in addition to the professional degree should plan to take the last year of the above course in Columbia College and should arrange to take Philosophy eA1-A2 earlier in the course.

### Scholarships

A scholarship, affording free tuition in the graduate courses of the Schools of Mines, Engineering and Chemistry will be given each year to the student who completes the above outlined evening course with the highest record.

#### Law

In order to secure the degree of Bachelor of Laws from Columbia University a student must present 94 points of collegiate study before entering the course. Students planning at some future time to study law are therefore advised to complete the collegiate work outlined on page 7 which, when supplemented by one course of six points, will answer the entrance requirements provided the student has also satisfactorily completed the  $14\frac{1}{2}$  units of high school studies required for entrance to college.

#### Medicine

In order to enter the College of Physicians and Surgeons in Columbia University students must present at least two years of collegiate study, amounting to 62 points if the work is done at Columbia College or in Extension Teaching, in addition to the regular high school preparation.

Students intending later to study medicine may complete the first three years of the evening collegiate course outlined on page 7 which will answer the collegiate requirements for admission. It is recommended, however, that they substitute courses in chemistry, botany and physics for advanced classes in modern languages or other subjects.

#### Secretarial Courses

The Department of Extension Teaching has provided for men and women a series of courses given in the afternoon and evening which will lead to a certificate in secretarial studies.

The object of these courses is properly to equip students who desire to become private secretaries or to hold important positions in offices as assistants to public officials or to persons engaged in professional pursuits. Students who undertake these courses in full must have had a high school education or its equivalent. The complete series will demand three years, although this may be reduced by attendance at Summer Sessions or by obtaining advanced standing on the presentation of evidence of having completed any course or its equivalent,

Students may make use of the late afternoon courses as well as those in the evening. These courses are described in detail in a special circular, which will be mailed upon request.

#### The Institute of Arts and Sciences

The Institute of Arts and Sciences is a division of the Department of Extension Teaching. The aim of the Institute is to provide a popular late afternoon and evening program consisting of university extension lectures, addresses and other events of a cultural nature.

The program is planned for busy men and women. The scope includes single lectures and short series of lectures on history, literature, art, music, geography, science and on current economic and social problems; it comprises also illustrated travel lectures, recitals, dramatic readings and vocal and instrumental as well as chamber music concerts by first class artists.

The annual dues are \$10 payable in advance with an enrollment fee of \$5 payable only once provided the enrollment does not lapse.

A member of the Institute will be entitled to free admission for nimself and one other person to all the lectures and other events on the regular evening program, but in the afternoon only one person will be admitted on the ticket. The ticket will be transferable. Altogether the membership tickets will include free admission to approximately 250 lectures, readings, recitals, etc. throughout the season. A member will be entitled also to reduced rates for reserved seats to the special or more costly events offered in addition to the regular events. The program will continue from October to April.

A special pamphlet describing in detail the program of the Institute will be mailed upon request.

# Regulations Governing Credit toward the Degrees of A.B. and B.S., Columbia College, Barnard College and Teachers College

Students of Columbia College, Barnard College and Teachers College will be allowed to attend Extension courses which are approved by the Committees on Instruction and will be allowed to count them toward the degrees of A.B. and B.S. under the following regulations:

- 1. The election of Extension courses must be approved by the Committees on Instruction.
- 2. Students will not be allowed to exceed a total of 16 hours in Barnard College, or 16 hours in Teachers College including the hours of Extension courses, save for reasons of weight and by the special permission of the Committees on Instruction.
- 3. Students desiring these courses to count toward the degrees of A.B. and B.S. must obtain at least a grade of C.

- 4. Matriculated students electing Extension courses after having obtained the approval of the Committees on Instruction must register for these courses at the office of the Registrar and pay the fees required for such courses.
- 5. Students matriculated in Teachers College who are taking courses in Extension Teaching with a view to counting such work in partial fulfillment of the requirements for the degrees and diplomas in Education are referred to the Announcement of the School of Education for 1914-15 for a statement in reference to a reorganization of Teachers College by which the School of Education becomes a graduate school after July 1, 1914, offering curricula leading only to the degrees of Master of Arts and Doctor of Philosophy. This reorganization affects in particular all students specializing in elementary or kindergarten education or in secondary education for the teaching of such academic subjects as biology, English, French, German, geography, history, Latin, mathematics, physics, or chemistry. Students whose courses may be affected by this reorganization should consult with the Secretary of Teachers College for further information and advice. The School of Practical Arts continues to award the degree of Bachelor of Science to students specializing in household arts, household or institutional administration, fine arts, industrial arts, music, physical education, nursing and health, or dietetics, or in the teaching of any of these subjects.
- 6. No degree is given for courses taken exclusively in Extension Teaching.

# Courses in Teachers College

Teachers College in its School of Education offers to matriculated students a number of its regular courses at hours in the afternoons and on Saturday mornings which are convenient to teachers. These courses include the history and philosophy of education, educational administration, educational psychology, secondary education, elementary education, kindergarten education, and certain courses on the methods of teaching academic subjects.

Teachers College offers also in its School of Practical Arts, at similar hours and in the evenings, some regular and a number of special classes in foods and cookery, sewing and textiles, household administration, nursing and health, household chemistry, fine arts, music, physical education, wood-working, metal-working, drawing, designing, etc. These special classes in the practical arts are open to all who are qualified to enter them.

Students matriculated or expecting to matriculate in Teachers College are referred to paragraph 5 above.

For further information see the special circular of Afternoon, Evening and Saturday Morning Courses and Special Classes which may be had on application to the Secretary of Teachers College.

# Relation of Extension Teaching to other University Work

- 1. The requirements for the degree of Master of Arts are stated in full in a bulletin entitled "Instruction for Candidates for the Degrees of Master of Arts and Doctor of Philosophy," which will be sent upon application to the Secretary of the University. This bulletin should be consulted by all students electing graduate courses.
- 2. Students taking Extension courses who desire to become candidates for the degree of Bachelor of Arts or Bachelor of Science or for professional degrees in Science, Law, Medicine, Journalism, and Practical Arts should make application to be received as such to the Committee on Undergraduate Admissions, Room 310 East Hall. The requirement for admission to the University as a candidate for these degrees is set forth in the Announcement of Entrance Requirements for 1914-1915, which may be obtained on application to the Secretary of the University.
- 3. Students taking Extension courses who desire to become candidates for a diploma in teaching or the degree of Bachelor of Science in Practical Arts should make application to be received as such to the Secretary of Teachers College. For full information in reference to the requirements for admission to the School of Education or the School of Practical Arts of Teachers College, also apply to the Secretary of Teachers College.
- 4. Students using Extension courses for the purpose of securing entrance credits must consult Professor Adam Leroy Jones, Room 310 East Hall. For admission to Barnard College students should consult the Dean of Barnard College before registering.

#### Absences

It is a student's duty to attend punctually each class or laboratory exercise in each course. For credit toward a degree or for a certificate of proficiency, attendance at nine-tenths of the sessions is required in addition to the proficiency attested by class work and examination.

A student may be absent without penalty in a half-year as follows: from a course meeting once weekly, twice; from a course meeting twice weekly, three times; from a course meeting three times weekly, four times; and from a course meeting four times weekly, five times.

In case this limit is exceeded, a student receiving a grade of D shall not be entitled to credit for that course; a student receiving a grade of C or higher may submit a statement showing the cause of each absence. If, in the judgment of the Administrative Board, these causes were imperative, full or partial credit for the course may be assigned by the Director upon the recommendation of the Administrative Board, in accordance with the

extent and reason of the student's absences and the standing attained in the course.

Tardiness counts as half an absence.

#### Examinations

Two examinations are regularly held, one at the close of the first half-year and the second on the termination of the course. A mid-term report is sent to the Director by the various instructors, approximately on November 15 and March 25. For examination at special times the fee is \$5 for each course.

Students who fulfill the conditions of registration, attendance and accomplishment of work prescribed, together with the payment in full of the fee for the course, will receive a report of standing from the Registrar within three weeks after the close of each half-year.

The student's performance in a course is reported according to the following grades: A, excellent; B, good; C, fair; D, poor; F, failure. In graduate courses P indicates passed; F, failure. H indicates a record of satisfactory attendance only.

#### Local Centres

To facilitate the work of instruction away from the University, the Administrative Board may institute local centres. Local centres may be established wherever a local community or a local organization undertakes to offer, year by year, one or more of the Extension courses of the University. Local boards of education, teachers' associations, schools, societies and clubs desirous of offering Extension courses may be constituted local centres. In general, however, a special local committee (president, secretary, treasurer, and five members representing the particular community) is the usual organization of the local centre.

Local centres are responsible, through the local committee, for the effective arrangement of Extension courses they offer. They determine the courses in co-operation with the Director; they enlist local interest; they provide, by fees or the sale of tickets or otherwise, for all the expenses of their work—the course fee, the cost of syllabi, the travelling expenses of the lecturer, lecture-hall, janitor, printing and advertising, and when lectures are to be illustrated they must provide the lantern and operator. The Administrative Board will establish and conduct local centres where suitable arrangements may be made and sufficient guarantees secured.

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# Enrollment

Year	Morningside	Extra-mural	Total
1910-11	922	390	1312
1911-12	1329	271	1600
1912-13	2016	296	2312
1913-14	2664	723	3387

The attention of Extension Teaching students is called to the graduate, college and professional courses given during the summer in the day and evening, from July 6 to August 14. Address the Secretary of the University.

#### COURSES OF INSTRUCTION

NOTE.—The University reserves the right to withdraw, substitute or change any courses which are named in this statement.

Courses corresponding and equivalent to prescribed courses of Columbia College are designated by letters A, B. A1, B1 refer to the first half-year's work (September-January) in such a course; A2, B2, to the second half-year's work (February-May). In numbered courses, odd numbers designate the first, even numbers the second, half-year.

In the statement of each course the prerequisites are indicated except that the equivalent of the first half of a hyphenated course (e. g., Botany e1-2) is usually assumed to be a prerequisite for admission to the second half.

#### Credits

The academic credit that may be awarded to students who give evidence of having completed the prerequisite work required by the several faculties is regularly indicated in connection with the statement of each course.

All courses marked Credit I—May be counted toward the degrees of A.B. and B.S. in Columbia College and Barnard College. The question of credit must be determined finally on consultation with the Committees on Instruction of the various faculties.

1A—May be counted toward the degree of Mus. B. only.

1B—May be counted toward the degrees of A.B. and B.S. in Barnard College only.
1c—May be counted toward the degrees of

A.B. and B.S. in Columbia College only.

All courses marked Credit II—May be offered by graduate students toward the degree of A.M. provided that a full course or its equivalent be taken in any half-year.

Open also to undergraduates on the approval of the appropriate Committee on Instruction obtained in advance.

All courses marked Credit IV—May be counted for matriculated students in the School of Practical Arts toward the degree of B.S. See p. 14.

All courses marked Credit V—May be counted toward the appropriate degrees in the Schools of Mines, Engineering and Chemistry, and Architecture.

Any course numbered 100 or above may be counted for undergraduate degrees under the general rules.

The fees and points as stated with the various courses are for each half-year. In the case of non-credit courses, the number of points is published merely to give a general idea of the amount of work required of the student.

### Agriculture

Columbia University, through the Extension Teaching Department, offers courses in agriculture. These courses may, with the approval of the Committee on Instruction, form part of the curriculum leading to the degree of B. S. for students of Columbia College. They will also be open to students who desire to take courses in agriculture alone.

It is recommended that matriculated students planning to study agriculture should enter Columbia College and take the subjects prescribed for the B. S. degree. In addition to the courses in agriculture, the student should take History e13–14, Chemistry eA, Economics e1–2, Politics e1–2, Botany e1–2, Geology e1–2, and Zoōlogy e1–2.

Students irregularly prepared and desirous of undertaking courses in agriculture should consult the Professor of 'Agriculture before registering for such courses.

e1-2—Agriculture. Field and forage crops. Lectures and laboratory. 3 points each half-year. Professor Morgan

9-10.50 a.m., Saturday (lectures), Room 505 Schermerhorn; laboratory 9.30 a.m., Wednesday, Room 502 Schermerhorn. Credit I, IV. Fee \$15 each half-year

The object of this course is to give the student entering the study of agriculture a clear understanding of the main problems and principles of present day scientific agriculture.

First half-year. The essentials of crop production as affecting the cereal crops of America. Special attention will be given the following: crop rotation, fertilizers, manures, varieties, cultural methods, food values, harvesting, storage, seed improvement, selection, and testing.

Second half-year. The production of hay, grass, legumes, potatoes and roots. The management of hay fields, clovers, alfalfa, vetches, cow peas, cereals for hay; pastures, seeding and management; the selection, planting, cultural treatment, harvesting of potatoes; the production of beets, turnips and rape for stock food.

Laboratory work will include the study of plant and grain characteristics, judging and scoring, testing for germination and purity.

e1a-2a—Course e1-2 with laboratory work omitted. 2 points each half-year. Fee \$10 each half-year

Sec. 1—9–10.50 a.m., Saturday, Room 505 Schermerhorn

Sec. 2-7.40-9.30 p.m., Tuesday, Room 516 Schermerhorn

e3-4—Soils and fertilizers. Lectures and laboratory. 3 points each half-year. Mr. Lake

2.10 p.m., Monday and Friday (lectures), Room 505 Schermerhorn; laboratory 3–5 p.m., Monday, Room 322 University Hall. Credit IV. Fee \$15 each half-year

Principles of soil management, given the first half-year, deals with the origin, composition and properties of soils; the physical, chemical and bacteriological factors, and economic deductions relating to machinery, crops and farm management.

Fertilizers, manures and soil amendments, given the second half-year, deals with soils and crop problems in agriculture from the standpoint of soil fertility the supply

in the form of manure, etc., and the practical economic consideration of maintaining and increasing the crop-producing power of lands.

- e5-6—Principles of horticulture. Lectures and laboratory. 3 points each half-year. Mr. Fraser
- 4.10 p.m., Tuesday and Thursday (lectures), Room 505 Schermerhorn; laboratory, 2.10–4 p.m., Tuesday, Room 502 Schermerhorn and in greenhouse. Credit IV. Fee \$15 each half-year

Fruit-growing, both small and tree, will be the major consideration of the first half-year. Propagation, planting, inter-cropping, management in unproductive and productive periods, spraying, harvesting, storage and marketing; pruning, spraying, budding and grafting in their proper relation to fruit-farming, and special problems in vegetable and fruit farm management will receive emphasis. Nut culture will be treated briefly.

Vegetable growing will comprise the chief part of the work of the second halfyear; preparation of soil, composts and seed for planting; hotbeds and cold frames, transplanting, forcing culture, companion cropping, spraying, harvesting, storage and marketing will be the main topics considered for kitchen, farm and market gardening projects. Flower gardening will receive only minor consideration.

- e7-8—Animal husbandry. Lectures and laboratory. 3 points each half-year. Mr. Bowes
- 1.10 p.m., Tuesday and Thursday (lectures); laboratory 2–4 p.m., Thursday, Room 321 University Hall. Credit I. Credit IV if specifically approved before registration. Fee \$15 each half-year

The object of this course is to give an introduction to the theory that underlies the management of cattle, horses, sheep, swine and poultry, and also the current practices of the management of these farm animals, including characteristics, selection and breeding. Excursions to nearby modernly equipped and operated farms will, besides regular laboratory exercises, be essential parts of the course.

- e7a-8a—Course e7-8 with laboratory work omitted. 2 points each half-year. Only for women
  - 3-5 p.m., Tuesday, Room 321 University Hall. Fee \$10 each half-year
- e9-10—Poultry husbandry. Lectures and laboratory. 3 points each half-year. Mr. Walker
- 2.10–3 p.m., Tuesday, 11–12 a.m., Saturday (lectures); laboratory 1–3 p.m., Saturday, Room 505 Schermerhorn. Fee \$15 each half-year. Credit IV if specifically approved before registration

The course covers the main points in handling poultry for chick, egg and meat production. The important topics taken up in lectures and laboratory periods in practically the order given are: origin and development of poultry types, breeds, development of poultry raising, poultry breeding, incubation, breeding, scoring, exhibiting, foods and feeding, poultry plant location and construction, sanitation, parasites and diseases, preparation and marketing.

Several lecture periods will be devoted to considering turkeys, ducks, geese, pigeons, etc.

The concluding lectures and laboratory periods have to do with profitable poultry management. The laboratory periods will be occupied with designing and drawing plans of poultry houses and appliances, practice with incubators and brooders, eggs,

caponizing, killing, picking and packing, trips of inspection to nearby poultry farms and visits to commission houses and cold storage warehouses.

e9a-10a—Course e9-10 with laboratory work omitted. 2 points each half-year

7.40-9.30 p.m., Monday, Room 505 Schermerhorn. Fee \$10 each halfyear

e17-18—Animal husbandry. Nutrition and management. Lectures and laboratory. 3 points each half-year. Mr. Bowes

9-9.50 a.m., Tuesday and Thursday (lectures); laboratory 10-12 a.m., Thursday, Room 321 University Hall. Credit I. Credit IV if specifically approved before registration. Fee \$15 each half-year

This course deals with the problems of nutrition during the first half-year. Feeds and principles and practices of feeding. The second half-year deals with the chief factors in management, such as training, housing and marketing. Laboratory work will be on specific problems of nutrition and management.

#### Architecture

For other courses in Fine Arts, see page 45, and for Structural Mechanics, see page 81.

The following evening courses in architecture will be offered in the year 1914–15. They form part of the work given in the School of Architecture, and will count toward the certificate and the degree in architecture for those who have passed the entrance examinations. They are open, however, to all qualified students without examination. See page 6 for a typical program and further information. For assistance in arranging programs in Architecture in Extension Teaching, application should be made to the Director of Extension Teaching, Room 306, Philosophy Hall.

For schedules of subjects and their position in the regular curriculum, see the Announcement of the School of Architecture.

The number of points is indicated with the statement of the course.

For courses in freehand drawing, see page 36.

e1—The elements of architecture. 3 points first half-year. Professor Harriman

8-10 p.m., Wednesday and Friday, one hour lecture and three hours drafting. Room 504 Avery. Credit V. Fee \$15

Mouldings, the orders, intercolumniation and superposition, balustrades, arcades, doors, windows, roofs, spires, vaults, domes.

e2—The elements of architecture. 3 points second half-year.

Professor Harriman

8-10 p.m., Wednesday and Friday, Room 504 Avery. Credit V. Fee \$15.

Prerequisite: A knowledge of orthographic projections: plans, elevations and sections.

Exercises in applications of elementary architectural forms as given in Course e1; of shades and shadows as given in Course e5; both of which are prerequisite.

- e5—Shades and shadows. 4 points first half-year. Professor SHERMAN 7-7.50 p.m., Monday, Wednesday and Friday, Room 407 Avery; 7.30-9.10, Tuesday, Room 504 Avery. Credit V. Fee \$25

  Equivalent to Architecture 5 of the regular course.
- e6—Shades and shadows. 4 points second half-year. Professor SHERMAN 7-7.50 p.m., Monday, Wednesday and Friday, Room 407 Avery; 7.30-9.10, Tuesday, Room 504 Avery. Credit V. Fee \$25
  Repetition of course e5 in the second half-year.
- e7—Perspective. 3 points first half-year. Professor Sherman 8-8.50 p.m., Monday and Wednesday, Room 408 Avery; 7.30-9.10 p.m. Tuesday, Room 504 Avery. Credit V. Fee \$20 Equivalent to Architecture 7 of the regular course.
- e8—Perspective. 3 points second half-year. Professor Sherman 8-8.50 p.m., Monday and Wednesday, Room 408 Avery; 7.30-9.10 p.m., Tuesday, Room 504 Avery. Credit V. Fee \$20 Repetition of course e7 in the second half-year.
- e9-10—Descriptive geometry. 2 points each half-year. Professor Harrington
- 6.30-7.20 p.m., Tuesday and Friday, Room 306 Engineering. Credit IC, V. Fee \$10 each half-year

Sixteen to twenty-four plates are required. Equivalent to Architecture 6 of the regular course.

e15-16—Building materials. 2 points each half-year. Mr. Walsh 9-9.50 p.m., Monday and Wednesday, Room 407 Avery. Fee \$10 each half-year

Specifications, properties and tests of building materials used in carpentry, slow-burning construction, steel and iron construction, masonry, fire-proofing, reinforced concrete, plumbing and electric light wiring.

Equivalent to Architecture 15-16 in the regular course.

e31-32—Ancient ornament. 1 point each half-year. Curator Bach 6-6.50 p.m., Monday, Room 407 Avery. Credit I, V. Fee \$5 each half-year

General classifications; origins; primitive and savage ornament; the historic ornament of Egypt, Assyria, Persia, Greece and Rome, including Ægean, Cypriote, Phoenician and Etruscan ornament; the development of the styles, the common motives and patterns of both architectural ornament and the minor arts.

Will not be given for less than ten students.

e33-34—Medieval ornament. 1 point each half-year. Curator Васн 6-6.50 р.т., Friday, Room 407 Avery. Credit I, V. Fee \$5 each half-year

The ornament of the early Christian, Byzantine, Romanesque and Gothic styles both in architecture and the minor arts; Moslem and Indian ornament; the development of styles, motives and patterns.

Will not be given for less than ten students.

[e35-36—Modern ornament. 1 point each half-year. Curator Bach Not given in 1914-15; to be given in 1915-16.] e21-22—Ancient and medieval architecture. 2 points each halfyear. Curator Bach

6-6.50 p.m., Tuesday and Thursday, Room 407 Avery. Credit I, V. Fee \$10 each half-year

The ancient architecture of Egypt, Assyria, Persia, Greece and Rome; early Christian, Byzantine, Romanesque and Gothic architecture.

Will not be given for less than ten students.

[e23-24—Renaissance, modern and Oriental architecture. 2 points each half-year. Curator Bach

This course will alternate with e21-22. Not given in 1914-15.]

e71-72—Drawing. 2 points each half-year. Professor Harriman 8-10 p.m., Monday and Thursday, Room 505 Avery. Credit V. Fee \$10 each half-year

Drawing in outline; isometric; from cast. Drawing e71 is prescribed for e72.

e75—Drawing. 2 points first half-year. Professor Harriman 8-10 p.m., Monday and Thursday, Room 505 Avery. Credit V. Fee \$10

Advanced charcoal drawing from cast. Pen and ink. Prerequisite: e71-72.

#### Design

The courses in Design are conducted on the basis of a progressive series of problems and sketches. These are assigned in the form of programs issued at stated intervals. The work of the students, delivered at a designated time, is passed upon by a jury of architects, the whole program being in this respect identical with that of the Society of Beaux-Arts Architects. A registration fee of two dollars is required by this Society; this must be paid to the Chairman of the Committee on Education, 16 East 33 Street, New York City. More detailed information on this head will be given at the first meeting of the courses.

The tuition fee in Design, regardless of course, is \$20 per term; students are advanced in accordance with the regulations of the Beaux-Arts Society on the basis of values obtained.

Note.—Students may meet Mr. Prévot on September 19 and 26 at 2 p.m. and on September 23 at 8 p.m. in Room 202 Avery.

Prerequisites for all courses. Work in the Elements of Architecture and Shades and Shadows, corresponding respectively to e1, e2, and e5, or their equivalents; such equivalents to be determined by Mr. Prévot, before registration. Students who wish subsequently to transfer their credits to the records of the School of Architecture must also submit Descriptive Geometry, e9-10, or its equivalent.

e**61–62—Elementary design.** 20 hours. Mr. Prévot and Mr. Ware Room 202 Avery. Credit  $(V^*)$ . Fee \$20 each half-year

Major and minor problems corresponding to the Class B Analytiques of the Society of Beaux-Arts Architects.

e63-64—Intermediate design. 20 hours. Mr. Prévot and Mr. Ware. Room 202 Avery. Credit (V\*). Fee \$20 each half-year

Major and minor problems corresponding to the Class B Projets of the Society of Beaux-Arts Architects.

e**65-66—Advanced design.** 20 hours. Mr. Prévot and Mr. Ware. Room 202 Avery. Credit (V\*). Fee \$20 each half-year

Major and minor problems corresponding to the Class A Projets of the Society of Beaux-Arts Architects.

#### Architectural Mathematics

For preparatory courses in algebra, geometry and trigonometry, see Mathematics, page 58. Students who are not studying for credit and who desire only a working knowledge of mathematics are referred also to course eX1-X2 under Structural Mechanics, page 81.

The following courses in mathematics are required of students who intend to become candidates for the degree or certificate in architecture. They should be taken as early in the course as possible by those who wish ultimately to transfer their credit to the School of Architecture.

Mathematics e1—Algebra. 3 points first half-year. Mr. Curt 7-8.15 p.m., Tuesday and Friday, Room 712 Journalism. Credit I, IV, V. Fee \$15

This course is designed for students who desire to continue with such more advanced topics as permutations and combinations, determinants with applications to the solutions of linear equations, complex numbers, theory of equations with reference to the solution of numerical equations of higher degree, undetermined coefficients involving the use of finite series, and partial fractions.

Acquaintance with the elements, including the quadratic equation, is presupposed. Equivalent to Mathematics 1 required of students in the School of Architecture.

Mathematics e3—Analytical geometry. 3 points first half-year. Mr. Nowlan

 $8.20\mbox{-}9.35$  p.m., Monday and Thursday, Room 709 Journalism. Credit I, IV, V. Fee \$15

Introduction to algebraic geometry, dealing with such topics as coordinate systems, transformations, loci and their equations, the straight line, circle, parabola, ellipse, hyperbola, the geometric interpretation of the general equation of second degree, and the elements of three-dimensional geometry.

eA1 and eA2 or their equivalents are presupposed.

Equivalent to Mathematics 3 or 4 in the Announcement of Columbia College, and of the Schools of Mines, Engineering and Chemistry, and together with e15 equivalent to the course Mathematics 6 required of students in the School of Architecture.

\*Students desiring credit for this course in the School of Architecture must submit a complete set of drawings done in Extension Teaching up to the time of the application for transference of credit and bearing the attestation of Mr. Prévot. Requests for such transference of credit should be made to Mr. Bach, Curator of the School of Architecture, or left in writing for him at the office of the Director of Extension Teaching. The difference in tuition fees must be paid.

Mathematics e15-16—Calculus. 3 points each half-year. Mr Nowlan

7-8.15 p.m., Tuesday and Friday, Room 709 Journalism. Credit I, IV, V. Fee \$15 each half-year

The notions and operations of function, differentiation and integration are presented with applications to geometry, physics and mechanics.

e3 or its equivalent is presupposed.

Equivalent to Mathematics 15-16 in the Announcement of Columbia College and covering fully the course Mathematics 7 required of students in the School of Architecture.

### Biology, p. 82

## Bookkeeping

**Accounting** e1-2—Elementary bookkeeping. Fee \$15 each half-year Sec. 1—7.40-9.30 p.m., Monday, Room 503 Journalism. Mr. BALTZ Sec. 2—9-10.40 a.m., Saturday, Room 503 Journalism. Mr. HUGHES

A knowledge of bookkeeping is not required of students taking this course. The principles of accounting and technique of bookkeeping will be developed from a few simple accounts to the complete system of accounts required by a modern business. The use of business forms such as checks, notes, drafts, consignments, and account sales will be explained and applied in the work; statements will be prepared; conversion from single proprietorship to partnership will be made, and problems illustrating the changing from single entry to double entry will be solved.

**Accounting** e**1a—Advanced bookkeeping.** 3 points first half-year. Mr. Hughes

3.15-5.05 p.m., Wednesday, Room 503 Journalism. Fee \$15

This course follows e2a and is planned for students who have had e1 or the equivalent.

**Accounting** e**2a—Elementary bookkeeping.** 3 points second half-year. Mr. Hughes

3.15-5.05 p.m., Wednesday, Room 503 Journalism. Fee \$15

A course for beginners.

es1—Elementary bookkeeping. Summer Session evening class. 2 points. Mr. Koopman

4-6 p.m., July 6-August 14, Room 511 Journalism. Fee \$10

A knowledge of bookkeeping is not required of students taking this course. The technique of bookkeeping will be developed from a few simple accounts to a modern system using special column books of original entry. The use of checks, notes and drafts will be explained and applied in the work. Students will be required to prepare income and profit and loss statements and balance sheets. The method of changing from single proprietorship to partnership will be illustrated.

Students completing this course may continue in September by electing course ela.

For other courses in accounting see p. 28, and the special circular

#### Botany

e1-2—Nature and development of plants. Lectures and laboratory. 4 points each half-year. Dr. Dodge

7.20–8.35 p.m., Monday and Thursday, Room 516 Schermerhorn. Laboratory 8.35–9.50 p.m. Credit I, IV. Fee \$20 each half-year

Organs, structure and work of the plant; development of plant life through an examination of the important biologic types.

e1a-2a—General botany. Lectures and laboratory. 2 points each half-year. Dr. Dodge

1.10 p.m., Saturday, Room 505 Schermerhorn. Laboratory 2.10-4 p.m., Room 502 Schermerhorn. Credit I, IV. Fee \$10 each half-year

e3a-4a—Edible and poisonous fungi. 2 points each half-year. Dr. Dodge

10-11 a.m., Saturday, Room 502 Schermerhorn. Laboratory 11-12 a.m., Saturday, Room 502 Schermerhorn. Credit IV. Fee \$10 each half-year

Laboratory work on the identification of the common types with field excursions for collecting and photographing specimens.

e5-6—Students having completed the preceding courses may continue their work by registering for this course, the hours and character of the work to be determined upon consultation with Professor Harper. 2 points each half-year. Credit I. Fee \$10 each half-year

Building Materials, p. 22

Business English, p. 44

Business Organization, p. 32

Business and Social Statistics, p. 33

Cataloguing, p. 58

# Chemistry

eA1—General chemistry. Elementary course for students beginning the study of chemistry. 2 lectures, 1 recitation and 2 hours laboratory practice. 4 points first half-year. Professor Neish and assistant

7.30-9.50 p.m., Tuesday and Friday, Room 301 Havemeyer. Credit I, IV. Tuition fee \$20

This course is the duplicate of the day course A1. It is prerequisite to the other courses in chemistry given in Extension Teaching and to the first-year chemistry in the combined six-year College and Engineering course.

Laboratory fee \$7.50. Deposit for breakage \$10.

cA2—General chemistry. Course eA1 repeated in the second half-year for students desiring to begin in February. 4 points second half-year. Mr. Haeseler

7.30-9.50 p.m., Tuesday and Friday, Room 311 Havemeyer. Credit I, IV. Fees as for eA1 above

e6—General inorganic chemistry. 2 hours classroom and 6 hours laboratory work. 5 points second half-year. Professor Neish and assistant

7.30-9.50 p.m., Tuesday, Wednesday, and 7-9.50, Friday, Room 301 Havemeyer. Credit I, IV, V. Tuition fee \$25 second half-year

This course, which presupposes a knowledge of general chemistry (eA1), continues the study of general chemistry, with particular reference to giving a greater knowledge of descriptive chemistry and a more advanced and systematic discussion of general principles and their applications. This course followed by e7 aims thus to prepare the student for the courses in organic chemistry or in qualitative analysis. It is equivalent to Chemistry 6C or 6E required of all first-year students in the combined six-year College and Engineering course, or to 3C.

Laboratory fee \$12.50 second half-year. Deposit for breakage \$10.

Prerequisite: Chemistry eA1 or the equivalent.

NOTE.—Chemistry eA1 followed by e6 is accepted for admission to the College of Physicians and Surgeons.

e7—General inorganic chemistry. 2 hours classroom and 6 hours laboratory work. 5 points first half-year. Mr. Leslie and assistant 7.30–9.50 p.m., Tuesday, Wednesday, and 7–9.50, Friday, Room 311 Havemeyer. Credit I, IV, V. Tuition fee \$25 first half-year

This course is a continuation of Chemistry e6. It is equivalent to Chemistry 7C or 7E required of all second-year students in the combined six-year College and Engineering course, or to 4C.

Prerequisite: Chemistry e6 or the equivalent.

Laboratory fee \$12.50 first half-year. Deposit for breakage \$10.

e41-42—Organic chemistry. Introductory course. 3 hours class-room and 6 hours laboratory work. 6 points each half-year. Dr. Fisher and assistant

7-9.50 p.m., Monday, Wednesday and Friday, Room 413 Havemeyer. Credit I, IV, V. Tuition fee \$30 each half-year

Instruction is given on the more important classes of organic compounds, as the hydrocarbons, alcohols, phenols, ethers, aldehydes, ketones, acids, esters, amines, cyanides, cyanates and simple nitrogen heterocycles. The lectures will be illustrated by experiments and material from the chemical museum. The laboratory work includes a study of the more important syntheses and reactions of the different classes of organic compounds. This course is accepted as the equivalent of Chemistry 41C-42C and is of special advantage to students of pharmacy and medicine.

Laboratory fee \$15 each half-year. Deposit for breakage \$20.

Prerequisite: Chemistry e6-7 or the equivalent.

e62—Qualitative analysis. 2 lectures and 6 hours laboratory work. 5 points second half-year. Mr. Leslie

7.30-9.50 p.m., Monday, Wednesday, and 7-9.50, Friday, Room 511 Havemeyer. Credit I, IV, V. Tuition fee \$25 second half-year

A systematic course in the theory and practice of inorganic qualitative analysis based upon the principles of modern chemistry. It is equivalent to 62C or 62E, required of all second-year students in the combined six-year College and Engineering course, or to 67.

Laboratory ee \$12.50 second half-year. Deposit for breakage \$10.

Text-book: Steiglitz' Qualitative Analysis, Pt. I.

Prerequisite: Chemistry e6-7, 6C-7C or 6E-7E, or 3C-4C.

NOTE.—Students who have previously completed the greater part of this course may, with the consent of the Director, register for the remainder, counting it 1 to 3 points.

[e63—Qualitative analysis. 2 lectures and 6 hours laboratory work. 5 points first half-year

7-9.50 p.m., Monday, Wednesday, and 7-8.50, Friday, Room 511 Have-meyer. Credit I, IV, V. Tuition fee \$25 first half-year

This course is a continuation of Chemistry e62 and will not be given until the first term of the year 1915-16. It is equivalent to 63C or 63E, required of all third-year students in the combined six-year College and Engineering course, or to 68,

Laboratory fee \$12.50 first half-year. Deposit for breakage \$10.

Text-book: Steiglitz' Qualitative Analysis, Pt. I.

Prerequisite: Chemistry e62, 62C or 62E, or 67.

NOTE.—Students who have previously completed the greater part of this course may, with the consent of the Director, register for the remainder, counting it 1 to 3 points.]

e71—Quantitative analysis, inorganic. 2 hours classroom and 6 hours laboratory work. 5 points first half-year. Mr. CALVERT

7.30-9.50 p.m., Monday, Wednesday, and 7-9.50, Friday, Room 511 Havemeyer. Credit I, IV, V. Tuition fee \$25 first half-year

Short course, including typical volumetric, gravimetric, electrolytic and gasometric methods.

Laboratory fee \$12.50 first half-year. Deposit for breakage \$10. Prerequisite: Chemistry e62-63, 62C-63C or 62E-63E, or 67-68.

#### COMMERCE

(See also special circular)

#### Accounting

e1-2-Elementary bookkeeping. Fee \$15 each half-year

Sec. 1—7.40–9.30 p.m., Monday, Room 503 Journalism. Mr. Baltz Sec. 2—9-10.40 a.m., Saturday, Room 503 Journalism. Mr. Hughes

es1—Elementary bookkeeping. Summer Session evening course. 2 points. Mr. KOOPMAN

4-6 p.m., July 6-August 14. Room 511 Journalism. Fee \$10

e1a—Advanced bookkeeping. 3 points first half-year. Mr. Hughes 3.15–5.05 p.m., Wednesday, Room 503 Journalism. Fee \$15

This course follows e2a and is planned for students who have had e1 or the equivalent.

e2a—Elementary bookkeeping. 3 points second half-year. Mr. Hughes

3.15-5.05 p.m., Wednesday, Room 503 Journalism. Fee \$15 A course for beginners. e3-4—Principles of accounting. 2 points each half-year. Mr. KOOPMAN

7.40-9.30 p.m., Thursday, Room 503 Journalism. Fee \$10 each half-year

- e5-6—Practical accounting. 2 points each half-year. Mr. Boyce 7.40-9.30 p.m., Friday, Room 503 Journalism. Fee \$10 each half-year
- e7—Cost accounting. Principles and theory. 2 points first half-year. Mr. Nicholson

7.40-9.30 p.m., Wednesday, Room 503 Journalism. Fee \$10

e8—Cost accounting. Practice and practical cost accounting. 2 points second half-year. Mr. Nicholson

7.40-9.30 p.m., Wednesday, Room 503 Journalism. Fee \$10

e9-10—Auditing practice and practical accounting problems. 2 points each half-year. Professor Montgomery

7.40-9.30 p.m., Tuesday, Room 503 Journalism. Fee \$10 each half-year

e12—Cost accounting. 2 points second half-year. Mr. WAFFLE 7.40-9.30 p.m., Wednesday, Room 511 Journalism. Fee \$10 Course e7 repeated in the second half-year.

**Economics** e171-172—Principles of accounting. Half course each half-year. Professor Montgomery

5.10--6 p.m., Tuesday and Thursday, Room 503 Journalism. Fee \$10 each half-year

Open only to students who have had two years of college work or the equivalent.

#### Commerce

Economics e1-2—Principles of economics. 3 points each half-year. Dr. Haig. Credit I, IV

7.30-10 p.m., Saturday, Room 512 Journalism. Fee \$15 each half-year

e3-4—Business organization and administration. 2 points each half-year. Dr. Stevens

7.40-9.30 p.m., Monday, Room 512 Journalism. Fee \$10 each half-year

**Economics** es**3—Principles of business administration.** Summer Session evening class. 2 points. Professor Robinson

6 p.m., July 6-August 14. Room 609 Journalism. Credit I. Fee \$10

e5-6-Commercial geography. 2 points each half-year. Credit IV. Professor McFarlane

7.40-9.30 p.m., Thursday, Room 507 Journalism. Fee \$10 each half-year

Economics e13-14—Railway traffic and rates. 2 points each halfyear. Dr. Willis

7.40-9.30 p.m., Monday, Room 507 Journalism. Fee \$10 each half-year

e15-16—Practical advertising. 2 points each half-year. Mr. Hubbart

 $7.40{-}9.30$  p.m., Tuesday, Room 507 Journalism. Fee \$10 each half-year

e17—Salesmanship. 2 points first half-year. Mr. Hubbart 7.40-9.30 p.m., Thursday, Room 512 Journalism. Fee \$10

es115—Advertising. 2 points. Summer Session evening class. Mr. Hubbart

7 p.m., July 6–August 14. Room 507 Journalism. Credit I, II. Fee \$10

Psychology e141-142—Psychology of advertising. Half course each half-year. Lectures, demonstrations and discussions. 2 points each half-year. Either half may be taken separately. Professor Hollingworth 7.30-9.10 p.m., Wednesday, Room 407 Schermerhorn. Credit II, IV. Fee \$10 each half-year

**Economics** e165–166—Business and social statistics. Half course each half-year. Professor CHADDOCK

5–6 p.m., Monday and Wednesday, Room 502 Kent. Fee \$10 each half-year

Economics e183—The development of railway transportation. Half course first half-year. Dr. Willis

9-10 a.m., Monday and Wednesday, Room 507 Journalism. Fee \$10

Economics e184—The development of water transportation. Half course second half-year. Dr. Willis

9-10 a.m., Monday and Wednesday, Room 507 Journalism. Fee \$10

Psychology e191-192—Psychology of advertising and selling. Half course each half-year. Professor Hollingworth

4.10-5 p.m., Tuesday and Thursday, Room 401 Schermerhorn. Fee \$10 each half year

**Economics** e193–194—Business organization and administration. Half course each half-year. Dr. Stevens

4-6 p.m., Monday, Room 505 Journalism. Fee \$10 each half-year

#### Commercial Law

- e1-2—Contracts. 2 points each half-year. Professor Gifford 7.40-9.30 p.m., Tuesday, Room 515 Kent. Fee \$10 each half-year
- e4—Negotiable instruments. 2 points second half-year. Mr. Currier 7.40-9.30 p.m., Wednesday, Room 515 Kent. Fee \$10
- e5—Agency. 2 points first half-year. Mr. Currier 7.40-9.30 p.m., Thursday, Room 515 Kent. Fee \$10
- e6—Corporation law. 2 points second half-year. Professor Wormser 7.40–9.30 p.m., Thursday, Room 515 Kent. Fee \$10

### English

Commercial English e1-2-Business English and commercial correspondence. Mr. Duncan

7.40-9.30 p.m., Friday, Room 511 Journalism. Fee \$20 each half-year

e11a-12a—Public speaking. 2 points each half-year. Fee \$10 each half-year

Sec. 1—7.40–9.30 p.m., Wednesday, Room 612 Journalism. Credit IV. Mr. Dow

Sec. 2—7.40-9.30 p.m., Thursday, Room 612 Journalism. Credit I, IV. Mr. HALLIDAY

#### Finance

e1-2-Corporation finance. 2 points each half-year. Dr. Stevens 7.40-9.30 p.m., Wednesday, Room 507 Journalism. Fee \$10 each half-year

Economics e3-4—Money and banking. 2 points each half-year.

Professor Agger

 $7.40 \hbox{--} 9.30$  p.m., Monday, Room 603 Journalism. Credit I, IV. Fee \$10 each half-year

e9-10—Investments. 2 points each half-year. Mr. LOWNHAUPT 7.40-9.30 p.m., Tuesday, Room 511 Journalism. Fee \$10 each half-year

Economics e161-162—Corporation finance. Half course each halfyear. Dr. Stevens

3.10--4 p.m., Monday and Wednesday, Room 507 Journalism. Fee \$10 each half-year

**Economics** e163—Principles of money and banking. Half course first half-year. Professor Agger

4.10-5 p.m., Monday and Wednesday, Room 511 Journalism. Fee \$10

Economics e164—Banking organization, domestic and foreign exchange. Half course second half-year. Professor AGGER

4.10-5 p.m., Monday and Wednesday, Room 511 Journalism. Fee \$10

Economics e182—Insurance. Half course second half-year. Mr. HUNTER

4-5.45 p.m., Wednesday, Room 512 Journalism. Fee \$10

Commerce, p. 28

Commercial Geography, p. 29

Commercial Law, p. 31

Concrete Construction, p. 37

Contracts, p. 31

Coplanar Statics, pp. 62, 82

Design, p. 23

Drafting, p. 61

#### **Economics**

e1-2-Principles of economics. 3 points each half-year. Dr. HAIG 7.30-10 p.m., Saturday, Room 512 Journalism. Fee \$15 each half-year

Economics is the study of business activity from the standpoint of public welfare. This course undertakes first to explain the present day organization and operation of industry and second to consider how far the present situation needs correction from the standpoint of efficiency in production and justice in distribution. The first half-year will be concerned with a historical and analytical study of the principles. The second half-year will be chiefly concerned with practical economic problems, such as the tariff, money and banking monopolies, the labor problem, etc.

The course presupposes a knowledge of European and American history.

Commerce e3-4—Business organization and administration. 2 points each half-year. Dr. Stevens

7.40-9.30 p.m., Monday, Room 512 Journalism. Fee \$10 each half-year

Forms of business and industrial organization; where to incorporate; the charter organization meetings, election of officers; proxies and voting trusts; standing committees and functions; line and staff; plant location and construction; purchasing and receiving departments; store keeping and perpetual inventories, the production department and production routine; payment of employees and workmen; credits and collections; sales organization; advertising department; traffic and shipping; office organization and management; time systems; filing, indexing and card record systems; graphic records; office appliances and equipment; the business efficiency movement.

e13-14—Railway traffic and rates. 2 points each half-year. Dr. Willis

7.40-9.30 p.m., Monday, Room 507 Journalism. Fee \$10 each half-year

First half-year—A description of railway practice and methods of organization. Conditions governing the commercial movement of freight, and the particular problems connected therewith are first analyzed. Shipping documents and other forms intended to illustrate practical transportation methods are freely used as illustrations and the relation between transportation systems, questions connected with through rates and transshipments as well as divisions of rates are dealt with in some detail.

Second half-year—Theory of rate making. An outline of the economics of rail-road rate making is presented as the basis for discussion and the principal theories of railroad rates are then passed in detailed review. Typical decisions of the Interstate Commerce Commission are used as the subjects of analysis, and study is given to changes in the direction of traffic consequent upon the application of given theories of rate making. Incidental attention is given to the effect of combinations and rate and traffic agreements on land and water movements.

e165-166—Business and social statistics. Half course each half-year. Professor Chaddock

5-6 p.m., Monday and Wednesday, Room 502 Kent. Fee \$10 each half-year

Laboratory hour for practical work to be arranged

This course presents the methods of collecting, arranging and interpreting statistical data. Some of the important sources of information are pointed out and the student is encouraged to use them in the laboratory. Averages and index numbers are explained, attention is given to systems of business statistics, such as those of Brookmire and Babson. Various kinds of graphs are shown and the student is given some practice in their construction. The remainder of the course is devoted to the study of statistical data and their interpretation in the fields of wages, prices, unemployment, trade, banking, accidents and vital statistics.

e183—The development of railway transportation. Half course first half-year. Dr. Willis

9.10 a.m., Monday and Wednesday. Room 507 Journalism. Fee \$10

An historical and critical review of the growth and present development of modern systems of railway transportation. The construction of steam railways, their extension and the consequent redistribution of business and manufacturing are historically reviewed with special reference to the United States. The organization of the railway as a business enterprise, the methods of financing railway corporations, and the statistical data relating to railway operations are examined. An outline study of theories of rate making as worked out in the United States and abroad is also undertaken. Special attention is paid to the recent history of transportation in the United States, European experience is studied from the comparative standpoint in its bearing upon American railway problems. This course is an introductory study to be followed by a special course analyzing the principal problems of railroad rate theory currently presented.

c184—The development of water transportation. Half course second half-year. Dr. Willis

9-10 a.m., Monday and Wednesday, Room 507 Journalism. Fee \$10

An historical and critical review of the growth and present development of water transportation. After a general sketch of the principal merchant marines of the world since the beginning of the nineteenth century, in which changes in construction and motive power are explained and special stress is placed upon the influence of modern oversea transportation in international trade distribution, an analysis of the principal trade routes of the present day is offered. The organization of the shipping industry and the methods employed by the chief maritime nations for the control of the business and the establishment of freights and fares, with the resultant effect in directing the flow of goods and passengers is explained. The internal water system of the United States, including canal and river systems as well as the position of the coastwise trade is likewise outlined. Special attention is given to the terminal and dock question and to the relationship between water and rail carriers. This course is supplementary to that dealing with the development of railway transportation.

# Psychology e191-192—Psychology of advertising and selling. Half course each half-year. Professor Hollingworth

4.10--5 p.m., Tuesday and Thursday, Room 401 Schermerhorn. Fee 10 each half-year

Lectures, readings, reports and demonstrations. Illustrated by lantern slides and by current advertising material.

Application of psychological principles and experimental methods to the problems of appeal and response in advertising and selling. Analysis and evaluation of methods and devices on the basis of (1) the known facts of human nature; (2) detailed examination of actual advertising campaigns and their results; (3) the application of laboratory technique; and (4) comparative study of old and new methods of marketing.

# e193-194—Business organization and administration. Half course each half-year. Dr. Stevens

4-6 p.m., Monday, Room 505 Journalism. Fee \$10 each half-year

Research course in the problems of business and industrial organization including incorporation; officers and functions; standing committees; line and staff organization; plant location and construction; purchasing and receiving; store keeping and perpetual inventories; production department and production routine; payment of employees; credits and collections; sales organization; advertising departments; traffic and shipping; office organization; time systems; filing, indexing and record systems; graphic records; appliances and equipment; efficiency movement in business.

#### Finance

e1–2—Corporation finance. 2 points each half-year. Dr. Stevens 7.40–9.30 p.m., Wednesday, Room 507 Journalism. Fee 10 each half-year

This course will deal with the corporate form and its advantages; legal status of the corporation; promotion and organization; financial plan and issuing of securities; combinations and consolidations; payment for stock and the sale of securities; underwriting; the management of corporate income; determination of profits and distribution of surplus; general principles in the issue of evidences of debt; holding corporations; leases, readjustment of capital account; receiverships and reorganization.

Prerequisite or parallel: Principles of Economics, page 32.

Economics e3-4—Money and banking. 2 points each half-year. Professor Agger

7.40-9.30 p.m., Monday, Room 511 Journalism. Fee \$10 each half-year

The object of this course is to give the student a knowledge of the evolution, history and theory of money and of banking. The first term's work will be centred about money and monetary problems, while that of the second term will concern itself more particularly with banking and banking problems. Emphasis in both cases will be put on the experience and needs of the United States.

Prerequisite: Principles of Economics, page 32.

# e9-10—Investments. 2 points each half-year. Mr. LOWNHAUPT

7.40-9.30 p.m., Tuesday, Room 511 Journalism. Fee \$10 each half-year

Investments and speculation.—The principal topics treated in the first half of this course are: credit, private and corporate use: credit instruments; short and long time paper; the source of funds seeking investment; government, municipal and corporation bonds. A study is made of more than fifty different types of corporation bonds and other credit contracts; the corporation mortgage; capital stock; function of the banking house; the listing of stocks and bonds on the exchanges; fluctuations in prices and the various influences; mathematics of bond values; speculation.

Investments. Analysis of corporation reports.—In the second half-year a thorough study and analysis is made of corporation reports, most particularly as applied to railroads. Principal topics: annual report forms; comparative analyses; significant unit statistics; uniform accounting; earning power; operating costs, including maintenance and operation; fixed charges; distribution of surplus; profit and loss account; balance sheet, together with a study of this important statement in specially selected cases preceding receivership; new construction, additions and betterments; nature of traffic; train, car and locomotive performance; traffic movement; physical factors in connection with capitalization, comprising way and structures and equipment and characteristics of each; efficiency of operation; practical analyses.

**Economics** e161-162—Corporation finance. Half course each half-year. Dr. Stevens

3.10-4 p.m., Monday and Wednesday, Room 507 Journalism. Fee \$10 each half-year

This course will deal with the development of the corporation; promotion and organization; basis of capitalization and the financial plan; the issue of securities; combinations and consolidations; methods of paying for stock; underwriting and the sale of securities; management of corporate income; determination of profits and depreciation; distribution of surplus; general principles in the issue of evidences of debt; holding corporations; leases; readjustment of capital account; receiverships and reorganizations.

**Economics** e163—Principles of money and banking. Half course first half-year. Professor Agger

4.10-5 p.m., Monday and Wednesday, Room 511 Journalism. Fee \$10

This course is concerned with a study of the fundamental principles underlying modern money and banking systems. It begins with a study of the evolution of money, and, in connection with the analysis of modern monetary systems, deals with the topic of the value of money and the collateral questions connected therewith. It treats of the requirements of a good money system and passes finally to the subject of banking.

Economics e164—Banking organization, domestic and foreign exchange. Half course second half-year. Professor AGGER

4.10-5 p.m., Monday and Wednesday, Room 511 Journalism. Fee \$10

This course is a continuation of the previous course, but concerns itself more broadly with the organization of banks into a system, with the requirements of a good system and finally with actual present day banking organization from this point of view.

#### Education

eX1—Dramatic instinct in education. 2 points first half-year. Mrs. A. Minnie Herts Heniger in charge. Fee \$15

4 to 5 p.m., Friday, Room 709 Journalism and 10 to 12 a.m., Saturday. The following special lecturers will take part in conducting this course:

EARL BARNES; CAROLINE CRAWFORD; G. STANLEY HALL; KATHERINE JEWELL EVERTS; GEORGE PIERCE BAKER; MADALENE BARNUM; MARY SHAW; JACOB HENIGER

This course will be credited for two points for matriculated students in the School of Practical Arts who have their major in Physical Education. The conditions of this credit must be obtained from the Director of Extension Teaching or from the Secretary of Teachers College.

#### Engineering

See also Structural Mechanics, p. 81

Mechanical drawing—eW1—Elementary freehand drawing. Six hours drafting per week. First half-year. Mr. BEANS

7-10 p.m., Wednesday; 2-5 p.m., Saturday, Room 601 Engineering. Fee \$15

Repeated in second half-year

This course will consist of practice in drawing from casts in outline, in light and shade, and in the elements of free-hand perspective.

It is intended to give a solid foundation in the principles of freehand drawing from a structural standpoint, and it is the aim to develop a perception of form, proportion and construction as well as facility in representing the same.

The instruction will consist almost entirely of individual criticism and the student will be urged to go as far as his individual ability will allow.

Elements and applications of algebra, geometry and trigonometry. See p. 81 under Structural Mechanics for this and other courses in this subject

### Civil Engineering

NOTE.—Practical courses in civil engineering are given at Camp Columbia in the summer. These are open to properly qualified students who have fulfilled the special prerequisites. For information address the Secretary of Columbia University.

e1-2—Theory of plane surveying. Equivalent to course CE 2 required of all students in the combined six-year college and engineering course. 2 points each half-year. Mr. FINCH

7.30-9.10 p.m., Wednesday, Room 306 Engineering. Credit I, V. Fee \$10 each half-year

First half-year—General principles of surveying and surveying instruments. Units and measurements. Errors and limits of precision. Tapes and measurement of distance. The vernier and level bubble. The compass, magnetic declination and variation, and local attraction. The wye and dumpy levels, theory of leveling, and rods. The engineer's transit, measurement of angles, azimith and traversing.

Second half-year—Surveys and computations: Land surveying, including farm, city and public land surveys, computation of coordinates and areas, parting off land, description, and relocation. Topographic surveying, transit and stadia method, theory and reduction of stadia measurements, the plane table and government work. Hydrographic, mine and construction surveys.

Prerequisite: Plane trigonometry; also first half-year prerequisite for second half-year.

Text-book: Tracy's Plane Surveying.

e2a—Field problems in plane surveying. Mr. Fish. A short course in field work arranged as a supplement to course e1-2

1.30-5, ten Saturday afternoons, and one evening, beginning March 13, meet in Room 407 Engineering. Fee \$7.50

# eX1-X2-Theory of railroad surveying. Mr. Finch

7.30-9.10 p.m., Monday, Room 306 Engineering. Fee \$10 each half-year

Railroad location in general. The relation of railroad surveys to the problem of railway location. The object of the Reconnaissance, preliminary and final locations and outline of methods used. The permanent way. Field Work: Simple curves. Compound curves. Reverse curves. Transition curves. Frogs and switches. Turnouts and cross-overs. Yard work. Cross-sectioning. Office work: The profile. Computation of earthwork. The mass curve for the proper distribution of earthwork. Estimates of cost.

The classroom work will consist of illustrative lectures and problems. Students will be required to work out numerous practical examples in connection with the theoretical work.

Prerequisites: Plane surveying, trigonometry, algebra.

Text-book: Searle's Field Engineering.

eX2a—Field problems in railroad surveying. Mr. Fish. Similar to course e2a arranged for students in course eX1-X2

1.30-5, ten Saturday afternoons, beginning March 13, Room 407 Engineering. Fee \$7.50

eY1-Y2-Plain and reinforced concrete construction. Mr. Finch

7.30-9.10 p.m., Thursday, Room 306 Engineering. Fee \$15 each half-year

First half-year—Historical, advantages, general definitions. Cement, manufacture, specifications, testing. The aggregate, proportions and strength of concrete. Mining, depositing, forms. Flexure and design of plain beams. Reinforced beams. Rectangular and "T" beams in bending. Shear and diagonal tension. Slabs. Columns.

Second half-year—Theory, design and construction. Bearing power of soils, earth and water pressure and loads. Gravity and cantilever retaining walls. Counterfoot reservoir wall. Slab and buttress dam. Design of forms for same. Design of pipes and standpipe. Highway slab and girder bridges. Loft building, including foundations and typical beams and columns.

No text-book will be used for this course, but students will be furnished with pamphlets, notes and tables and complete drawings of all the design work to supplement their notes. As a reference-book on the work of the first term Hool's Reinforced Concrete Construction and as a general reference Taylor and Thompson Concrete Plain and Reinforced are recommended.

#### Electrical Engineering

# e1—Elements of electrical engineering. Lectures. First half-year. Mr. Hamilton

7.30-9.10 p.m., Tuesday and Friday, Room 302 Engineering. Fee \$20

Designed to give the student a general knowledge of the principles of electricity and magnetism.

Prerequisites: Algebra, elementary chemistry and physics. Students should consult the instructor as to these prerequisites.

# e2—Principles of direct-current machinery. Lectures and laboratory. Second half-year. Mr. Hamilton

7.30-9.10 p.m., Tuesday and Friday, Room 302 Engineering. Fee \$20

Designed to give the student a knowledge of the construction and characteristics of direct-current generators and motors.

Prerequisite: Electrical Engineering e1.

Note.—A deposit of \$10 to cover possible breakage is required of students taking Electrical Engineering e2.

# e3—Elements of alternating currents. Lectures. First half-year. Mr. Hehre

7.30-9.10 p.m., Monday and Thursday, Room 302 Engineering. Fee \$20

Designed to give the student a general knowledge of the principles of alternating

Prerequisites: Electrical Engineering e1 and e2 or equivalent. Students not having taken e1 and e2 should consult with the instructor as to these prerequisites.

# e4—Principles of alternating current machinery. Lectures and laboratory. Second half-year. Mr. Hehre

7.30-9.10 p.m., Monday and Thursday, Room 302 Engineering. Fee \$20

Designed to give the student a general knowledge of the construction and characteristics of alternating current machinery.

Prerequisite: Electrical Engineering e3.

Note.—A deposit of \$10 to cover possible breakage is required of students taking Electrical Engineering e4.

### English

Collegiate Courses

eA1-A2—English composition. Lectures, themes and conferences. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—7-8.15 p.m., Monday and Thursday, Room 307 Philosophy. Dr. Wolff

Sec. 2—7-8.15 p.m., Tuesday and Friday, Room 614 Kent. Mr. HALLER

Sec. 3—3.10-4.25 p.m., Tuesday and Friday, Room 507 Journalism. Dr. Taylor

Note.—Section 3 will probably continue for only the first half-year.

This course corresponds to English A in Columbia College. Students are expected to confer regularly with the instructor at times to be appointed within the conference period immediately following each class.

eA3-A4—English composition. Lectures, themes and conferences. 1½ points each half-year. Dr. Wolff

9-10.15 a.m., Saturday, Room 611 Journalism. Credit I, IV, if taken both half-years. Fee \$7.50 each half-year

This course is equivalent to one-half of English A. It is offered for teachers and students who desire to gain a knowledge of the principles of rhetoric and English composition as they are now taught in the colleges.

Two one-page themes or one three-page theme a week will be called for. Students are expected to confer regularly with the instructor at times to be appointed within the conference period—10.15-10.45. No other engagement should be made for this half hour.

eA8—English composition. Lectures, themes and conferences. 3 points second half-year. Mr. CLARK

 $8.20\mbox{-}9.35$  p.m., Monday and Thursday, Room 707 Journalism. Credit I, IV. Fee \$15

Course eA1 given in the second half-year for students beginning at that time.

eA9—English composition. Lectures, themes and conferences. 3 points first half-year. Mr. CLARK

8.20-9.35 p.m., Monday and Thursday, Room 707 Journalism. Credit I, IV. Fee \$15

Course eA2 given in the first half-year for students who have already had eA1 or eA8 or the equivalent.

eB1-B2—English literature and composition. Lectures, themes and conferences. 2 points each half-year. Dr. Wolff

8.45-9.35 p.m., Monday and Thursday, Room 302 Philosophy. Credit I, IV. Fee \$10 each half-year

This course corresponds to English B in Columbia College. It consists in part of the careful and appreciative study of portions of the works of Chaucer, Spenser, Milton, Pope and Wordsworth.

e1a-2a—English composition. Advanced course. Lectures, themes, and theme criticism. 1½ points each half-year. Dr. Wolff

11–12.15 a.m., Saturday, Room 709 Journalism. Credit I, IV. Fee \$7.50 each half-year

Open to students who have passed English A with high standing or to special students of maturity. This course presumes a knowledge of formal rhetoric and training in the essentials of composition, correctness and precision. From two to four pages of manuscript (250-500 words) are required each week.

e1b-2b—The short story. English composition. Theory of fiction writing. Fee \$15 each half-year. Dr. WILLIAMS

Sec. 1-9.30-10.45 a.m., Saturday, Room 712 Journalism

Sec. 2—8.20–9.35 p.m., Monday, Room 610 Journalism

In this course story writing is studied from the point of the literary critic and also as far as possible from that of the writer. Details of construction will be investigated and the student called upon to contrive plots, depict characters and incidents and to write at least five short stories during the year. No special previous training is required, but those wishing to enter the course must submit during the first week a story or sketch of not more than 5,000 words as evidence of competency.

e1c-2c—The short story. English composition. Dr. WILLIAMS 11 a.m.-12.15 p.m., Saturday, Room 611 Journalism. Fee \$20 each half-year

This course is open only to the following students: those who have done promising work in 1b-2b; those who have not completed 1b-2b but submit at the outset a story of evident merit; and those graduate students specializing in English composition who wish advanced training in theory and criticism.

e3a-4a—Dramatic composition. Fee \$15 each half-year. Mr. Hughes Sec. 1—2-3.15 p.m., Saturday, Room 611 Journalism Sec. 2—8.20-9.35 p.m., Friday, Room 609 Journalism

This course is designed for students desiring to write plays. In the beginning of the course each student will be required to submit the scenario of a play to be written during the year. These scenarios will be criticized with reference to their suitability for the stage; and the manuscripts prepared for them will be analyzed from the point of view of the dramatist. Specific technical problems will be discussed in class as they come up in the course of the work. Representative recent and current plays will be taken up and analyzed with a view to ascertaining the principles underlying their construction and the causes of their success or failure. Constant practice in plot construction and the preparation of scenarios will be given. In so far as possible the work of the course will be adapted to meet the specific requirements of the individual students.

e11a-12a—Public speaking. 2 points each half-year. Fee \$10 each half-year

Sec. 1—7.40-9.30 p.m., Wednesday, Room 612 Journalism. Mr. Dow. Credit IV

Sec. 2—7.40-9.30 p.m., Thursday, Room 612 Journalism. Mr. Halliday. Credit I, IV

This course will deal with public address. Its aim is to give practical training to men and women of whom speaking is demanded in their profession. The first hour will be given to the delivering of prepared speeches, the second to special training before the class.

e15-16—English versification. Technic of English poetry. 2 points each half-year. Dr. COHEN

8.20–10 p.m., Tuesday, Room 707 Journalism. Credit I, IV. Fee \$10 each half-year

This course, intended not only for those who wish themselves to experiment with verse forms, but also for those who desire to arrive at a richer appreciation of poetry, will consist of lectures and exercises in metrical composition. Illustrations will, for the most part, be drawn from the great poets, but contemporary writers will by no means be neglected. This course will be especially valuable to teachers of English.

e17-18—Modern literature, English and foreign. 2 points each half-year. Professor Steeves

7.25-8.15 p.m., Tuesday and Friday, Room 605 Journalism. Credit I, IV. Fee \$10 each half-year

This course is a general survey of the principal current literary types, tracing their characteristics from the influences prevalent in the Victorian period and giving attention to foreign artistic sources and parallels. The course requires extended and rapid outside reading of a weekly average of possibly three hundred or four hundred pages. The required reading can generally be found in the branch libraries of the New York Public Library.

e19-20—The history of American literature. 2 points each half-year. Professor Van Doren

9-10.40 a.m., Saturday, Room 709 Journalism. Credit I, IV. Fee \$10 each half-year

The course furnishes an account of literary production in America from the beginning to the present day. Special attention is given to literary movements in their relation to the political and social background. Assigned readings in important authors will supplement lectures and recitations.

e23-24—English literature from 1830-1890. 2 points each halfyear. Professor Patterson

7.40-9.20 p.m., Wednesday, Room 605 Journalism. Credit I, IV. Fee \$10 each half-year

A study of Victorian literature, beginning with Carlyle. In the first half-year the work will centre around Tennyson; in the second half-year around Browning. Other poets, such as Arnold, Morris, Rossetti and Swinburne, will also be studied. The course will be conducted by means of assigned readings and discussions.

e35a-36a—Shakespeare. 2 points each half-year. Professor TASSIN 4.10-5.50 p.m., Thursday, Room 507 Journalism. Credit I, IV. Fee \$10 each half-year

An introduction to the study of Shakespeare, the condition and character of his life and work and the technic of his plays studied from the dramatic rather than from the literary point of view.

e41-42—Development of the drama. 2 points each half-year. Dr. HALL

8.20-10 p.m., Monday, Room 612 Journalism. Credit I, IV. Fee \$10 each half-year

This course will trace the development of English drama from the time of the early miracle plays to the death of Sheridan. It will consider in some detail the moralities, the earliest English tragedies and comedies, the works of Shakspere's predecessors, Shakspere's place in the drama of the time, his successors, and if time permits, the Restoration drama.

e41a-42a—Contemporary dramatic literature. 2 points each halfyear. Mr. Hamilton

10-11.40 a.m., Saturday, Room 408 Avery. Fee \$10 each half-year

In this course study will be made of representative works of the leading modern dramatists from Victor Hugo to Sir Arthur Pinero. Special attention will be devoted to the evolution of contemporary stagecraft. The best new plays presented during the current theatre season in New York will also be analyzed from the point of view of the dramatic critic. The course will be especially helpful to students who desire subsequently to write plays or to write dramatic criticism; it will bring the actual theatre of today within the reach of academic study.

e43-44—Typical forms of English literature. The lyric. 2 points each half-year. Professor Tucker

11-12.40 a.m., Saturday, Room 712 Journalism. Credit I, IV. Fee \$10 each half-year

This course traces the development of the lyric from the publication of *Tottel's Miscellany*, 1557, to the death of Tennyson, 1892, with emphasis upon the major lyric poets. The work will be conducted by means of assigned readings, class discussions, and special reports.

e81-82—Survey of English literature from the Anglo-Saxon period to the present time. 2 points each half-year for students who have already taken English A and B. Professors Trent, Fletcher, Thorndike and Ayres

11–12.40 a.m., Saturday, Room 713 Journalism. Credit I, IV. Fee \$10 each half-year

This course provides a general review of the entire history of English literature such as may be serviceable to various classes of students who already have some familiarity with that literature. The lectures will supply bibliographical and critical suggestions for further reading and study. Students taking the course for credit must complete the assigned reading and pass the examination.

#### Preparatory Courses

# eV1-V2—English for foreigners. Dr. S. W. PATTERSON

3.30-4.20 p.m., Tuesday and Friday, Room 609 Journalism. Fee \$15 each half-year

This course is designed to give foreigners such a training as will enable them to pursue with advantage the more advanced courses in English. By means of reading and conversation it aims to give students a correct pronunciation and to familiarize them with English idiom. While correct oral expression will be regarded as important, more emphasis will be placed on correct written expression. To this end the more elementary principles of English grammar will be studied, and short compositions on simple subjects will be required regularly.

# eW1-W2-English grammar and composition. Mr. Duncan

7-7.50 p.m., Monday and Thursday, Room 609 Journalism. Fee \$20 each half-year

This course is intended for mature students who desire to acquire a thoroug knowledge of the elementary principles of English grammar. After a rapid review of the parts of speech and their modifications, a detailed treatment of word elements, phrase elements and clause elements and their relations in sentences will be given. Much time will be devoted to the analysis and synthesis of different types of sentences. Punctuation will be regarded as a system of points to denote grammatical relations, and thus considerable attention will be given this subject. One-page compositions on subjects drawn from life and from the experience of the students will be required regularly. This course is recognized as a credit course for promotion licenses by the Board of Education.

Students who contemplate taking College Entrance English, either eX1-X2 or

eY1-Y2, should have completed this course or its equivalent.

es**W1—English grammar and composition.** Summer Session evening class. 3 points. Mr. Duncan

7.30-8.20 p.m., July 6-August 14, Room 609 Journalism. Fee \$15

eW4—English grammar. Course eW1 repeated in the second half-year. Mr. Duncan

8-8.50 p. m., Monday and Thursday, Room 609 Journalism. Fee \$20

e**W5—English composition.** Course eW2 repeated in the first half-year. Mr. Duncan

8-8.50 p. m., Monday and Thursday, Room 609 Journalism. Fee \$20

eX1-X2—College entrance English. Books for reading. Reading of texts, themes, conferences, tests, lectures, special oral reports, discussions. Dr. Gaston

4.30-5.45 p.m., Monday and Thursday, Room 512 Journalism. Fee \$20 each half-year

This course is designed to aid in preparing for English a, as required for admission to College. During the first half-year the literature read will be plays and novels; during the second half-year poems and essays. In connection with the reading of literary masterpieces, special attention will be paid to the problem of how to read and to the work of composition planning. The successful completion of this course will count toward the removal of entrance conditions in English.

Students already registered in this course who show obvious inability to carry the work, will be transferred to eW1-W2; those who show themselves already equipped in the essentials of the course will be advised to transfer to eY1-Y2. Only in exceptional cases will students be permitted to take simultaneously both eX1-X2 and eY1-Y2.

es**X1—College entrance English.** Summer Session evening class. 3 points. Dr. S. W. Patterson

7-8 p.m., July 6-August 14, Room 512 Journalism. Fee \$15

es**X2—College entrance English.** Summer Session evening class. 3 points. Dr. S. W. Patterson

8–9 p.m., July 6–August 14, Room 512 Journalism

eX4—College entrance English. Course eX1 repeated in the second half-year. Dr. Gaston

7-8.15 p.m., Monday and Thursday, Room 605 Journalism. Fee \$20

**English.** Course eX2 repeated in the first half-year. Dr. Gaston

7-8.15 p.m., Monday and Thursday, Room 605 Journalism. Fee \$20

e**Y1–Y2**—College entrance English. Books for study. Study of texts, themes, tests, lectures, discussions. Fee \$20 each half-year

Sec. 1—4.30-6.10 p.m., Wednesday, Room 512 Journalism. Mr. MITCHILL

Sec. 2-7-8.40 p.m., Wednesday, Room 609 Journalism. Mr. Duncan

This course is designed to aid in preparing for English b, as required for admission to College. The work will consist of a detailed study of the books in the study list, a thorough review of English literature, and the writing of many themes. Students will be called upon to do much written work in exposition in preparation for each lesson. The successful completion of this course will count toward the removal of entrance conditions in English.

Students already registered in this course who show obvious inability to carry the

work will be transferred to eX1-X2.

Prerequisite: eX1-X2 or its equivalent (the third year of high school course).

es**Y—College entrance English.** Summer Session evening class. 3 points. Mr. Duncan

6-7.20 p.m., July 6-August 14, Room 612 Journalism. Fee \$15

eY4—College entrance English. Course eY1 repeated in the second half-year. Mr. Duncan

7-8.40 p.m., Tuesday, Room 609 Journalism. Fee \$20

eY5—College entrance English. Course eY2 given in the first half-year. Mr. Duncan

7-8.40 p.m., Tuesday, Room 609 Journalism. Fee \$20

Commercial English—e1-2—Business English and commercial correspondence. Mr. Duncan

7.40-9.30 p.m., Friday, Room 511 Journalism. Fee \$20 each half-year

This course is intended for stenographers, private secretaries, and for those who wish to become proficient in effective business communication. The aim is to teach how to use words in such a way as to make people act. The principles of literary composition will be applied to commercial correspondence. Business situations will be analyzed, letters classified into type forms, and the requisites of each class will be exemplified by many models. The psychology of advertising and the sales letter will be analyzed, and principles derived from this analysis will be applied in actual practice. The course will be not merely theoretical, but practical. Every student will be required to write several letters each week, and no one who has not sufficient time for such written work should take this course.

Special consideration will be given to letters of application, letters of complaint, sales letters, follow-up letters and collection letters.

A prerequisite to this course is a knowledge of the principles of elementary English grammar.

es1—Business English and commercial correspondence. Summer Session evening class. 3 points. Mr. Duncan

8.30-9.30 p.m., July 6-August 14, Room 609 Journalism. Fee \$15

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#### Fine Arts

(For courses in Architecture, see page 21.)

**Architecture** e41–42—Decorative arts. 1 point each half-year or with additional reading 2 points (e41a–42a). Curator BACH

4.10 p.m., Wednesday, Room 407 Avery. Credit I, V, if taken with at least one other course. Fee \$5 each half-year, or \$10 each half-year (e41a-42a)

An analysis of the principles controlling decorative composition and a detailed treatment of the processes involved in the following arts: mosaic, mural painting, architectural sculpture, ceramics, stained glass, plaster, iron and wood-work.

Architecture e91—The history of painting. 1 point first half-year, or with additional reading 2 points (e91a). Curator BACH

4.10 p.m., Thursday, Room 407 Avery. Credit I, V, if taken with at least one other course. Fee \$5 or \$10 (e91a)

This course will follow stylistic developments in painting with due regard for historical sequence and the manifestations of national, school, and institutional characteristics. The artist's point of view will be consistently emphasized and the materials and processes of production duly considered.

Will not be given for less than fifteen persons and may be repeated in the second term if that number apply.

Architecture e92—The history of sculpture. 1 point second half-year, or with additional reading 2 points (e92a). Curator BACH

4.10 p.m., Thursday, Room 407 Avery. Credit I, V, if taken with at least one other course. Fee \$5 or \$10 (e92a)

This course will offer a concise historical treatment of stylistic developments in the field of sculpture, in which national, school and institutional influences, as well as the various types and processes of sculpture are adequately considered.

Will not be given for less than fifteen persons.

e51-52—Introduction to the history of art: Ancient, Mediæval, Renaissance, Modern, and Oriental. 1½ points each half-year. Mr. Smith

8.20-9.35 p.m., Friday, 408 Avery. Credit IV. Fee \$10 each half-year

This course covers the development of the arts of painting and sculpture, and, to a limited extent, of the derived and dependent arts. The point of view is historical, noting the appearance and growth of national characteristics, and of the artistic types which express these characteristics. The history of art is shown not so much in the succession of monuments as in the development of style. It is especially desired to make the course useful to practical people—painters, sculptors and designers. Students who can draw will be given opportunity to illustrate their notes with sketches of typical and important works. Attention is given to methods and processes; carving, modeling, fresco, etc. The large resources of the Avery Library are available for reference and furnish abundant illustration.

e51a—Sculpture and the decorative arts. A study of the originals in the Metropolitan Museum of Art, including the Morgan and Altman collections. 2 points first half-year. Fee \$10. Dr. KRIEHN

Sec. 1—10–12 a.m., Saturday, Metropolitan Museum

Sec. 2-2-4 p.m., Friday, Metropolitan Museum

This course, combined with Fine Arts e52a, offers a year's systematic study of the most important art objects in the Metropolitan Museum. It is designed especially to teach the appreciation of sculpture and the decorative arts, and to outline briefly their history. Among the subjects treated, besides sculpture proper, will be ivories, enamels, porcelains, small bronzes, furniture and tapestries. Full advantage will be taken of the J. P. Morgan collection, which is particularly rich in the decorative arts. Special attention will be devoted to the needs of teachers and university students, for whom Section 1 is designed. The course is accepted as a thirty-hour collegiate course by the Board of Education of New York City. Collateral reading is prescribed for those registering for credits. Use will be made of the important Museum library, with its collection of photographs and other reproductions.

e52a—The paintings of the Metropolitan Museum of Art. A study of the originals in the Museum, including the Morgan and Altman collections. 2 points second half-year. Fee \$10. Dr. KRIEHN

Sec. 1-10-12 a.m., Saturday, Metropolitan Museum

Sec. 2-2-4 p.m., Friday, Metropolitan Museum

This course is planned for all who wish to learn how to judge and enjoy painting. It is a continuation of the preceding course, but may be taken independently. Each session will be devoted to a school or to individual masters of painting; but the treatment will be in historic sequence, thus affording an outline of the history of painting. The needs of teachers and university students will be provided for in Section 1, which is especially designed for them. This course is offered under the same conditions of credits, collateral reading, and use of the Museum library as e51a.

#### Geology

e1—General geology. A general introduction to the subject of geology. 3 points first half-year. Dr. Reeds

8.20--9.35 p.m., Tuesday and Friday, Room 401 Schermerhorn. Credit I, IV. Fee \$15

This course covers an introduction to the common rocks, their structure, origin and occurrence in nature; weathering of rocks and its products, geological activities of the air, the streams and the sea; characteristics and work of glaciers, volcanoes and earthquakes.

The laboratory work consists of a study and identification of common rocks, drawing of structure sections, interpretation of topographical maps, etc. There will be several field trips on Saturday afternoons.

No prerequisite. Equivalent to Geology 1 in Columbia College. A knowledge of elementary chemistry is desirable.

Text-book: Chamberlin and Salisbury, College Geology.

e2—Historical geology. The origin of the earth and its development—succession of plant and animal life. 3 points second half-year. Dr. REEDS

8.20--9.35 p.m., Tuesday and Friday, Room 401 Schermerhorn. Credit I, IV. Fee \$15

This course deals with the origin of continents and ocean basins and their development during successive geologic periods, characteristic sections and their interpretations, study of important types of fossils as indications of geologic age; the glacial period and the antiquity of man; development of surface features or physiography.

The laboratory work consists of the study of maps, sections and fossils, followed by work with physiographic models. There will be several excursions on Saturday afternoons in the spring.

Prerequisite: Geology 1 or Geology e1 or s1.

Text-book: Chamberlin and Salisbury, College Geology; Grabau, Syllabus of Historical Geology.

#### German

eA1-A2—Elementary course. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—4.30-5.45 p.m., Tuesday and Friday, Room 512 Journalism. Mr. Eyster

Sec. 2—8.35-9.50 p.m., Monday and Thursday, Room 605 Journalism. Mr. Werner

Sec. 3—7-8.15 p.m., Tuesday and Friday, Room 512 Journalism. Mr. Schulze

This course familiarizes the beginner with the common vocabulary and the fundamental grammatical facts of the language so as to enable him to read easy German at sight. Reading forms part of the work from the beginning, together with grammar study, easy exercises in composition, and a considerable amount of colloquial practice in the phrases of everyday life. Although this course is intended for beginners it may be taken with profit by those who have some previous knowledge of the language but are deficient in grammar.

Prerequisite to eA2: eA1, eA3-4, or sA1 and sA2. For course eA1 no previous knowledge of German is required.

Course eA2 completes the college entrance requirement in Elementary German.

eA3-A4—Elementary course. Equivalent to course eA1. 1½ points each half-year. Mr. BACH

10-11.15 a.m., Saturday, Room 405 Avery. Credit I, IV. Fee \$7.50 each half-year

This course, continuing throughout the year, is equivalent to course eA1. The student may complete the requirement in Elementary German for college entrance or for a degree by taking eA2, eA5-A6, or (if specially proficient in eA3-A4) sA3.

Prerequisite to eA4: eA3 or sA1. For Course eA3 no previous knowledge of German is required.

eA5-A6—Elementary course. Equivalent to course eA2. 1½ points each half-year. Mr. BACH

11.30-12.45, Saturday, Room 405 Avery. Credit I, IV. Fee \$7.50 each half-year

Prerequisite, eA1, eA3-A4 or sA1 and sA2.

This course, continuing throughout the year, is equivalent to course eA2.

eA8—Elementary course. 3 points second half-year. Credit I, IV.

Sec. 1—4.30-5.45 p.m., Tuesday and Friday, Room 603 Journalism. Dr. Porterfield

Sec. 2—8.35-9.50 p.m., Monday and Thursday, Room 611 Journalism. Mr. Reichling

Equivalent to eA1 of the first half-year (for description see above); followed by eA9 (equivalent to eA2), given the first half-year.

eA9—Elementary course. 3 points first half-year. Credit I, IV. Fee \$15

Sec. 1—4.30-5.45 p.m., Tuesday and Friday, Room 603 Journalism. Dr. Porterfield

Sec. 2—8.35-9.50 p.m., Monday and Thursday, Room 611 Journalism. Mr. REICHLING

Follows eA8; equivalent to eA2 of the second half-year (for description see above).

eB1-B2—Intermediate course. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—4.30–5.45 p.m., Tuesday and Friday, Room 609 Journalism. Mr. Schulze

Sec. 2—7-8.15 p.m., Monday and Thursday, Room 610 Journalism. Mr. Werner

This course is intended for students who have satisfied the college entrance requirement in Elementary German or have taken Course eA1-A2 or an equivalent. Course eB2 completes the requirement in Intermediate German for college entrance or for a degree.

The work of this course includes the reading (partly at sight) of about five hundred pages of moderately difficult prose and verse by standard modern and classical authors; grammatical instruction, beginning with a rapid review of the elements and embracing the fundamental principles of syntax and word-formation; exercises in composition and free reproduction, oral and written, with some colloquial practice. The texts studied will be selected with reference to variety of style and vocabulary and will include Freytag's Die Journalisten, Heine's Harzreise, and Schiller's Wilhelm Tell.

Prerequisite: eA2, eA5-6, or sA3, or an equivalent.

Students will require at the beginning of this course Baumbach's Der Schwiegersohn, edited by Florer and Lauer (Allyn and Bacon), and Thomas, Practical German Grammar (Holt).

eB3-B4—Shorter intermediate course. 2 points each half-year. Professor Braun

9-10.40 a.m., Saturday, Room 302 Philosophy. Credit I, IV. Fee \$10 each half-year

This course is equivalent in hours to two-thirds of eB1-B2 and includes the more important work of the longer course, with a smaller amount of reading (about 350 pages) and of practice in writing and speaking. Students proficient in this course are able to pass the college entrance examination in Intermediate German.

If supplemented by course e3-4 or s3-4 it will be accepted in satisfaction of the intermediate requirement for admission or for a degree.

Prerequisite: as for Course eB1-B2.

eB6—Intermediate course. 3 points second half-year. Mr. Grav. Credit I, IV. Fee \$15

4.30-5.45 p.m., Tuesday and Friday, Room 605 Journalism

Follows eA9; equivalent to eB1 of the first half-year (for description see above).

eB7—Intermediate course. 3 points first half-year. Mr. Gray. Credit I, IV. Fee \$15

4.30-5.45 p.m., Tuesday and Friday, Room 605 Journalism

Follows eB6; equivalent to eB2 of the second half-year (for description see above).

e3-4—Composition and oral practice. Intermediate course. 1½ points each half-year. Credit I, IV. Fee \$7.50 each half-year

Sec. 1—11-12.15 a.m., Saturday, Room 610 Journalism. Dr. Betz Sec. 2—8.30-9.45 p.m., Monday, Room 712 Journalism. Dr. Betz

This course aims to meet the demand for instruction looking toward a practical command of the German language. It is intended for students who possess an elementary reading knowledge (the equivalent of Course eA2 or eA9 or eA6, but previous practice in oral expression is not regarded as a prerequisite. The course may be taken with advantage by students who are taking, or have taken, eB1-B2 or eB3-B4.

From the outset simple German will be employed as far as possible by instructor and student alike. The subjects pursued and the methods employed will depend in large measure upon individual needs. The conversation will be based upon easy German narrative prose, short poems and, so far as may be practicable, upon daily life and current events, and will be supplemented with frequent dictation exercises. The composition work will consist of translations into German and of original themes upon subjects discussed in class.

e5-6—Introduction to the classics. Selected works of Goethe, Schiller and Lessing. 3 points each half-year. Professor Hervey

4.30-5.45 p.m., Monday and Thursday, Room 302 Philosophy. Credit I, IV. Fee \$15 each half-year

This course aims to make the student familiar with representative works of the classical period and the outlines of its history, and to increase the student's command of vocabulary and idiom by means of supplementary sight reading and by interpretation of the text without the medium of translation.

The course will include the reading and study of selected dramas of Lessing, Goethe and Schiller, with brief discussion of other works in connection with assigned private reading. As the course affords but little practice in speaking and writing German, it is recommended that Course e3-4 or e11-12 be taken in connection with it.

Prerequisite: eB2, eB4, or an equivalent.

Text-books required at the beginning: Lessing's Emilia Galotti, edited by Winkler (Heath); Rolleston's Life of Lessing, published in the "Great Writers" series (Walter Scott, London).

e11-12—Composition and oral practice. Advanced course. 1½ points each half-year. Professor Braun

11-12.15 a.m., Saturday, Room 302 Philosophy. Credit I, IV. Fee \$7.50 each half-year

Intended to continue the work of Course e3-4 or s3-4, but has at the same time a distinctly literary content. It presupposes a good reading knowledge and fair ability to understand the spoken language. This course will be conducted wholly in German. The conversation will be upon topics chosen from the field of literature, daily life and current events. The composition work will consist in the rendering of outlines of the literature read and in the preparation of original themes.

Students will require at the beginning of this course Buchheim, Balladen und Romanzen (Macmillan).

e101-102—History of German literature. First half-year from 800 to 1500 a.d.; second half-year from 1500 to 1800 a.d. Half course each half-year. Professor Thomas

9–10.40 a.m., Saturday, Room 508 Philosophy. Credit II, IV. Fee \$10 each half-year

The course consists of lectures, readings from Thomas's Anthology, and essays or reports on assigned topics. The lectures introduce the students to the more important writers and writings and aim to give a clear, though very general, idea of the character of epochs, and the growth and decay of literary tendencies.

e145-146—Practicum in modern German usage and advanced syntax. Half course each half-year. Professor HEUSER

11-12.40 a.m., Saturday, Room 508 Philosophy. Credit II, IV. Fee \$10 each half-year

This course, open only to those who have a mastery of elementary grammar and syntax, is designed specifically for teachers desiring to perfect their practical command of German. Weekly written exercises and themes will be required and much attention will be paid to distinctions of synonyms and to the differences between classic, modern literary, and colloquial usage. As far as possible, the work will be adapted to varying needs, and individual consultations will be arranged.

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#### Greek

e1—Elementary Greek. 3 points first half-year. Dr. Reiley 4.15-5.30 p.m., Tuesday and Friday, Room 405 Avery. Credit I, IV, if followed by e2. Fee \$15 first half-year

This course is intended for students who wish to learn the elements of classical Greek. No previous knowledge of the language is required. The course will cover a careful study of the fundamental forms, idioms and 'grammatical principles of Attic Greek prose. Reading will form part of the work from the beginning and there will be constant practice, both oral and written, in the translation of easy English into Greek.

e2—Xenophon and sight translation. 3 points second half-year. Dr. Reiley

4.15-5.30 p.m., Tuesday and Friday, Room 405 Avery. Credit I, IV. Fee \$15 second half-year

This course will cover the first four books of the Anabasis. It will also include constant practice in sight translation and some oral and written work in Greek prose composition.

Prerequisite: e1 or its equivalent.

Text-book: Harper and Wallace, Xenophon's Anabasis (American Book Company).

## Gymnasium, p. 66

# Hebrew, p. 77

## History

eX1—American history. Text, discussions, readings, notes, maps. Mr. Hill

4.30-5.45 p.m., Tuesday and Friday, Room 511 Journalism. Fee \$15

This course aims to cover the requirements for college entrance and to give a brief survey of the essential facts of American history from the earliest discoveries to the present time. The study will give due emphasis to the political, territorial, commercial, industrial and social development. The successful completion of this course will count toward the removal of entrance conditions in history.

eX2—Ancient history. Text, discussions, readings, notes, maps. Mr. Hill

4.30-5.45 p.m., Tuesday and Friday, Room 511 Journalism. Fee \$15

This course aims to cover the requirements for college entrance and to give a brief survey of the essential facts of ancient history from the earliest times to the age of Charlemagne. The study will present the life of the peoples, their social and political development, and the growth and expansion of the nations of the ancient world. The successful completion of this course will count toward the removal of entrance conditions in history.

eA1—The foundations of modern Europe. Lectures, readings and discussion. 3 points first half-year. Dr. Humphrey

8.20-9.35 p.m., Tuesday and Friday, Room 612 Journalism. Credit I, IV. Fee \$15

After a brief survey of the contributions of the ancient world and of the middle age to European civilization, the course will deal with important political, economic and intellectual achievements from the fifteenth to the eighteenth centuries. It will treat of the spirit of reform and of revolt, the expansion of Europe, monarchy by divine right and the various aspects of the "old régime."

Texts: Hayes, Syllabus of Modern History, Robinson and Beard, Development of Modern Europe, 2 vols.

This course is equivalent to History A1 as given in Columbia and Barnard Colleges.

eA2—Modern and contemporary history. Lectures, readings and discussion. 3 points second half-year. Dr. Humphrey

8.20-9.35 p.m., Tuesday and Friday, Room 612 Journalism. Credit I, IV. Fee \$15

This course is designed as an introduction to current national and international problems. The principal topics will be the intellectual achievements of the eighteenth century, the French Revolution with reference to political and economic

changes, the work of Napoleon in reforming France and in reshaping the map of Europe, the Industrial Revolution, the development of Italian and German unity, the Third French Republic, the rise of Russia, modern social problems and imperialism in Africa and the Orient.

Texts as for eA1.

This course is equivalent to History A2 as given in Columbia and Barnard Colleges.

eA9—The formation of the United States. Lectures, readings and discussions. 3 points first half-year. Mr. Fox

7-8.15 p.m., Monday and Thursday, Room 709 Journalism. Credit I. IV. Fee \$15

A general survey of American history from the age of the discoveries to the adoption of the Constitution in 1789. Among the more important topics treated are: the European background of American history; the European institutions in America; the English colonies and their revolt; the attempt at union under the Articles of Confederation; and the formation of the Constitution.

Syllabus: Schuyler, Syllabus of American History.

This course is equivalent to History A9 as given in Columbia College, and forms the logical introduction to the advanced study of American history for this period.

eA10—The development of the American nation. Lectures readings and discussions. 3 points second half-year. Mr. Fox

7–8.15 p.m., Monday and Thursday, Room 709 Journalism. Credit I, IV. Fee \$15

This course begins with a study of the government as organized under the Federalist system and modified under the influence of Jeffersonian democracy. It then considers our foreign relations during the period which culminated with the War of 1812. The influences of slavery, the frontier, and manufactures are then traced through the nineteenth century, with particular reference to tariff controversies, territorial expansion, War with Mexico, question of free soil, the Republican party, the election of 1860, and secession. The Civil War is treated with emphasis upon its political and constitutional phases, followed by a survey of reconstruction in the Southern States.

Syllabus as for eA9.

This course is equivalent to History A10 as given in Columbia College, and forms the logical introduction to the advanced study of American history for this period.

e11-12—The history of England. Lectures, realings and discussion. 2 points each half-year. Professor Schuyler

11–12.40 a.m., Saturday, Room 707 Journalism. Credit I, IV. Fee \$10 each half-year

A survey of English history from earliest times to the present. Deals with economic, social, intellectual and religious development as well as with politica and constitutional progress.

e15-16—Recent American history. Lecture-study course. 2 points each half-year. Dr. Kendrick

9-10.40 a.m., Saturday, Room 707 Journalism. Credit I, IV. Fee \$10 each half-year

A review of the earlier half of the nineteenth century will be followed by a survey of the development of the United States since the Civil War. Beginning with the organization of the Federal government, the course treats of growth of opposing principles of nationality and sectionalism, culminating finally in the appeal to arms. Particular attention will be paid to Reconstruction and attendant problems; railroads and the opening of the West; combinations of capital and labor; currency and the tariff; foreign relations and imperialism; political readjustment to meet new social needs. The chief object of the course is to develop a comprehension of the historical background of present day conditions.

e104—The political and social evolution of modern Turkey and Egypt. Lecture-study course. Half course second half-year. Professor Gottheil

4.10-5 p.m., lecture; 5-5.50 p.m., conference, Tuesday, Room 706 Philosophy. Credit for those taking both hours, II, IV. Fee \$10

This course will cover the history of the Ottoman Empire from the beginning of the nineteenth century to the present day, the reforms introduced since 1326, the constitutions of 1876 and 1908, the War in Tripoli, 1911-12, the Balkan War, 1912-13, the history of Egypt since Mohammed Ali and the results of the English occupation.

e104a—Course e104 supplemented by assigned readings and reports. Full course. Credit II, IV. Fee \$20

e125-126—History of the Slavonic nations. Lecture-study course. Half course each half-year. Professor PRINCE

4-4.50 p.m., lecture; 4.50-5.40 p.m., conference, Wednesday, Room 706 Philosophy. Credit for those taking both hours, II, IV. Fee \$10 each half-year

This course will deal especially with the historical and cultural evolution of the Slavic nations from the pre-Christian period until modern times, with exposition of their daily life, customs and folk songs.

e145-146—Social and industrial history of the United States. Lecture-study course. Half course each half-year. Mr. Gambrill.

7.30-8.20 p.m., lecture; 8.20-9.10 p.m., conference, Monlay, Room 615 Kent. Credit for those taking both hours, II, IV. Fee \$10 each half-year

This course deals with the social and industrial aspects of the development of the American nation. It treats from this point of view such topics as the settlement of the colonies, their development and their revolt from England; growth and distribution of population, and the "Westward Movement"; the growth of slavery and the problems following its extinction; the industrial Revolution; the progress of invention; the development and inter-relations of the great industries; the story of the workers and the growth of industrial democracy.

e149-150—The French Revolution and the Napoleonic era. Lecture-study course. Half course each half-year. Professor Muzzey

11-12.40, Saturday, Room 509 Journalism. Credit II, IV. Fee \$10 each half-year.

The object of this course will be to study the French Revolution in its broad social, economic and religious aspects as well as in its dramatic political character. Particular stress will be laid on the conditions of the eighteenth century France which led to the Revolution, and the features of the Revolution which permanently remedied those conditions. The constructive work, both of the men of 1789 and of Napoleon, will be emphasized more than the episodes of the Revolution.

e153-154—Political and social history of Western Europe since 1848. Lecture-study course. Half course each half-year. Professor HAVES

4.20-5.10 p.m., lecture; 5.10-6 p.m., conference, Monday, Room 709 Journalism. For those taking both hours, Credit II, IV. Fee \$10 each half-year

Opens with an account of the chief political and social problems which confronted the peoples of Western Europe after the downfall of Napoleon. Treats the revolutionary movements of 1848-1849, the gradual growth of democracy, and the political careers of Louis Napoleon, Bismark, Disraeli and Gladstone. Deals with the present governments of Germany, France and Great Britain and with such special topics as nationalism, imperialism and militarism. The unifying theme in the course is the increasing adaptation of modern political institutions to social betterment.

e155—The origins of European society. Lecture-study course. Half course first half-year. Professor Shotwell

7.30-8.20 p.m., lecture; 8.20-9.10 p.m., conference, Tuesday, Room 615 Kent. Credit for those taking both hours, II, IV. Fee \$10

Deals with evolution of European society, with especial emphasis upon history of work and of common things of daily life. Begins with survey of prehistoric man, the stone, bronze and early iron ages, rise of agriculture, ancient city states, commerce and slavery. Passes in review early German village life, feudalism, management of manorial estates, rise of European cities, emergence of capital, origins of national state and beginnings of world commerce.

e156—Social and industrial history of modern England. Lecturestudy course. Half course second half-year. Professor Shotwell

7.30-8.20 p.m., lecture; 8.20-9.10 p.m., conference, Tuesday, Room 615 Kent. Credit for those taking both hours, II, IV. Fee \$10

Begins with short survey of commercial revolution which changed centre of European society from Mediterranean to North. Treats of influx of gold and silver from America and business aspects of modern politics. Industrial revolution then taken up in detail, great inventions and rise of the factory systems. Advent of industrial proletariat and survey of popular movements toward reform, Chartism, social legislation, Trade Unions and historical setting of Socialism.

e161-162—History of social reform in the United States. See p. 79

e171-172—Relations of the United States and Latin America. Lecture-study course. Mr. Hill

7.40-9.20 p.m., Friday, Room 615 Kent. Credit II. Fee \$10

This course deals with the political, economical and cultural relations of the United States and the Latin-American republics. Among the topics treated are: Recognition of the Spanish-American republics; the Monroe doctrine; interventions of the United States in Latin America; Cuba and the Spanish-American War;

the inter-oceanic canal; Pan-American Conferences; work of the Pan-American Union; the Wilson doctrine; commerce; attitude of Latin America toward the United States.

#### International Law

See also Politics, p. 67

e103-104—International law. Lecture-study course. Half course each half-year. Professor Stowell

7.30-9.20 p.m., Wednesday, Room 512 Journalism. Credit II, IV. Fee \$10 each half-year

This course begins with a brief introductory examination of the basic principles of international law relating to war, peace, and neutrality. The application of these principles is then made to selected cases, and the knowledge thus acquired made use of to examine critically current questions arising in the international relations of the United States and other countries. Especial emphasis is laid upon the practice of arbitration and the possibilities of its wider extension.

No previous knowledge of international law is required, but the prior study of an elementary text-book, such as Lawrence's Handbook of International Law, is strongly recommended.

Text-book: Scott's Cases on International Law.

e103a-104a—International law. Course e103-104 supplemented by assigned readings and reports. Full course. Credit II. Fee \$20

e131-132—Foreign policy of the United States. Lecture-study course. Half course each half-year. Professor Stowell

11-12.40 p.m., Saturday, Room 511 Journalism. Credit II, IV. Fee \$10 each half-year

This course after a brief historical outline of American diplomacy studies the important or vital interests of the United States in its relations with other nations and discusses the policies adopted by the government to protect and further them. The situation of the United States as a world power is compared with that of other great states and the factors making for international influence analyzed.

Text-books: Moore's American Diplomacy; Foster's Century of American Diplomacy.

e131a-132a—Foreign policy of the United States. Course e131-132 supplemented by assigned readings and reports. Full course each half-year. Credit II. Fee \$20 each half-year

#### Latin

eA3—Collegiate Latin. Horace, Odes and Satires: Catullus. 3 points first half-year. Dr. Guernsey

4.30-5.45 p.m., Monday and Thursday, Room 405 Avery. Credit I, IV. Fee \$15. The same as A2 in Columbia College

eA4—Collegiate Latin. Livy (Books xxi-xxii); Terence, Phormio. 3 points second half-year. Dr. Guernsey

4.30-5.45 p.m., Monday and Thursday, Room 405 Avery. Credit I, IV. Fee \$15. The same as A1 in Columbia College

## eX1-Elementary Latin. 3 points first half-year. Miss WYE

7.30-9 p.m., Tuesday and Friday, Room 611 Journalism. Credit I for the B.S. degree if taken in conjunction with Latin eX2; IV. Fee \$15

The aim of this and the succeeding courses of the two-year cycle is to teach students to read, write and speak the language readily and accurately. To this end the work will be conducted in strict accordance with the principles of the Direct Method. There will be constant drill in the use of forms in oral and written work and systematic study of syntax and vocabulary, but translation from one language to the other will be deferred until the student has a sound knowledge of the elements of Latin.

No previous knowledge of Latin is required for this course.

Text-book: Paine and Mainwaring, Primus Annus; Decem Fabulae (Clarendon Press).

eX2—Caesar, Nepos and prose composition. 3 points second half-year. Miss WyE

7.30-9 p.m., Tuesday and Friday, Room 611 Journalism. Credit I for the B.S. degree if taken in conjunction with Latin eX1; IV. Fee \$15

The amount and scope of the reading in this course and in the supplementary courses eY1-Y2 will follow closely the recent recommendations of the Cleveland Commission on Entrance Requirements in Latin. Great stress will be laid upon free composition and oral work. There will be occasional exercises in translation. Prerequisite: eX1 or its equivalent.

Text-books: Appleton, Puer Romanus; Teubner text editions of Caesar's Gallic War and the Lives of Nepos.

eX3—Caesar, Nepos and prose composition. 3 points first half-year. Dr. Reiley

4.30-6 p.m., Monday and Thursday, Room 706 Philosophy. Credit I for the B.S. degree if taken in conjunction with Latin eX1; IV. Fee \$15

This course, given in the first half-year, is planned for students who have studied Latin one year and for those who wish to review the work of the second year of high school.

eY1—Ovid and Vergil. 3 points first half-year. Miss WYE

3-4.30 p.m., Tuesday and Friday, Room 611 Journalism. Credit IV. Fee \$22.50

The aim of this course is to introduce the student to the study of Latin poetry. Attention is therefore centred upon the qualities which distinguish prose from verse, range of ideas, metrical form and poetic diction. Exercises in English translation will be more frequent than in the preceding course. Occasional summaries in Latin will be required.

Prerequisite: eY3 and eY5 or eY3 and eY6.

Text-books: Gleason, A Term of Ovid; Harper and Miller, Vergil's Aeneid (American Book Company).

eY3—Cicero and Sallust. 3 points first half-year. Miss WYE

7-8.15 p.m., Monday and Thursday, Room 611 Journalism. Credit IV if taken in conjunction with eY5 or eY6. Fee \$22.50

In this course the orations for the Manilian Law and for Archias will be read together with the account of the Catilinarian Conspiracy as it appears in Sallust's Catiline and in the Catilinarian orations.

Prerequisite: eX1-X2 or the equivalent.

Text-books: Text editions of Sallust's Catiline and the six orations of Cicero specified; Strachan, Davidson, Cicero (Putnam).

eY5—Latin prose composition. 2 points first half-year. Miss WYE Sec. 1—3.10-4 p.m., Monday and Thursday, Room 611 Journalism

Sec. 2—8.20-9.10 p.m., Monday and Thursday, Room 713 Journalism. Credit IV if taken in conjunction with eY3. Fee \$15

This course is designed to give a thorough review of the material which is ordinarily included in the high school course in Prose Composition.

Prerequisite: eX1-X2.

Text-books: Baker-Inglis, Latin Composition (Macmillan); Gildersleeve, Latin Grammar (Heath).

e**¥6—Latin prose composition.** Course e**¥**5 repeated. Second halfear

3.10-4 p.m., Monday and Thursday, Room 611 Journalism. Fee \$15

eY8—Ovid and Vergil. Course eY1 repeated. Credit IV. Second half-year. Miss WyE

Sec. 1—3–4.30 p.m., Tuesday and Friday, Room 611 Journalism Sec. 2—7–8.15 p.m., Monday and Thursday. Room 611 Journalism

e97-98—Colloquial Latin. 2 points each half-year. Miss WYE 5.10-6 p.m., Tuesday and Friday. Room 611 Journalism. Credit IV. Fee \$10 each half-year

The use of the oral or direct method in linguistic teaching has until recently been confined to modern languages. It has been used with remarkable success in the German Reform Schools, especially in the Musterschule at Frankfurt-am-Main. Its application to ancient languages has been delayed partly by the feeling that those languages are "dead," partly by the lack of teachers qualified to use Greek and Latin as the medium of instruction in the class-room. Within the last few years, however, this method has been applied to Greek and Latin by Dr. W. H. D. Rouse, at the Perse School, Cambridge, England, with such success that the English Board of Education published the results of a special investigation of the work of this school.

## Library Economy

The attention of students is called to the fact that these courses in Library Economy are not a substitute for the one or two years training of the library schools. For a complete series of courses the student is referred to the New York Public Library. A student who is devoting the entire time to study is strongly advised to elect also courses in English literature, French and German.

# e1-2—Bibliography. Miss Keller

6-6.50 p.m., Friday, Room 611 Journalism. Fee \$10 each half-year

A study by means of lectures and problems of the standard works of bibliography and reference. General and national bibliography, American, English, French and German. Reference works, i. e. encyclopedias and dictionaries, general and special, indexes to periodicals, statistical annuals, quotations, handbooks of information, etc.

The bibliographies of special subjects, best books, and manuals will be given by professors of the University.

Text-book: A. B. Kroeger, Guide to the Study and Use of Reference Books.

### e3-4-Cataloguing and classification. Miss GIBBS

7--9.30 p.m., Tuesday and Thursday, Room 501 Journalism. Fee \$10 each half-year

Lectures and practice work based on the A. L. A. catalogue rules; A. L. A. list of subject headings for use in dictionary catalogues, 4th ed.; Rules for a Dictionary Catalogue, 4th ed., by C. A. Cutter and the Decimal Classification by Melvil Dewey. First half-year, cataloguing; second half-year, cataloguing and classification. The second half-year cannot be taken without the first, of which it is a continuation.

### e5-6-Library administration.

6-6.50 p.m., Wednesday, Room 611 Journalism. Fee \$10 each half-year

The course of the book from the publisher through the departments of the library to the reader will be followed in detail of process and record as follows: Book selection and book buying, American publishers, the book order department, its staff, checking of invoices and order files, accessioning; the catalogue department of the large and the small library; book binding and rebinding; charging systems; library statistics; the library budget; the librarian's report; library advertising. The special library, including the children's library, will be considered in the second half-year.

Practice work will be arranged. Required reading will be mainly in the files of the Library Journal and Public Libraries.

e21—Indexing, filing and cataloguing as applied in business. 2 points first half-year. Miss Wallace

8.20-10 p.m., Monday, \*Room 501 Journalism. Fee \$10

Lectures and practice. A course in indexing and filing correspondence, clippings, pamphlets, etc. The application of library methods, card and classification systems, especially the Dewey Decimal system, to records in business offices and special libraries, commercial houses, banks and corporations.

e22—Indexing, filing and cataloguing as applied in business. Course e21 repeated in the second half-year. 2 points. Miss WALLACE 8.20-10 p.m., Monday, \*Room 501 Journalism. Fee \$10

#### Mathematics

eX1—Algebra, elementary and intermediate course (complete). First half-year. Mr. Nowlan

6.10--7 p.m., Monday, Tuesday, Thursday, Friday, Room 605 Journalism. Fee \$25

This course covers elementary algebra to quadratics and beyond. It includes the fundamental operations, factoring, fractions, ratio and proportion, quadratics, binomial theorem (simple forms), progressions and graphical methods.

Text-book: Wentworth's New School Algebra.

eX2—Algebra. Course eX1 repeated. Second half-year. Mr. McMackin

<sup>\*</sup>After the first eight lectures this class will meet often at various business offices for actual experimental work.

7.25-8.15 p.m., Monday, Tuesday, Thursday, Friday, Room 713 Journalism. Fee \$25

eX3—Algebra, intermediate course. First half-year. Mr. Mc-Mackin

8.20-9.35 p.m., Monday and Thursday, Room 603 Journalism. Fee \$15

This course is planned especially for students who take Mathematics esX in Summer Session and for those who wish to complete their requirements in intermediate algebra. The work will begin with factoring and will continue through quadratics.

Text-book: Hawke's Second Course in Algebra.

esX—Elementary algebra. Summer Session evening class. Mr. McMackin

7.15-8.15 p.m., July 6-August 14, Room 202 Hamilton. Fee \$15

This course, planned for beginners, covers elementary algebra to quadratics. It includes the fundamental operations, factoring and fractions. Students taking this course should continue by electing eX3 in September.

eY1—Plane geometry (complete). First half-year. Mr. McMackin 7.25-8.15 p.m., Monday, Tuesday, Thursday, Friday, Room 713 Journalism. Fee \$25

The first five books of Wentworth's Geometry, including rectilinear figures, the circle, proportion, areas of polygons, regular polygons and circles.

Text-book: Wentworth's Geometry (Wentworth and Smith's revision).

e**Y2—Plane geometry.** Course eY1 repeated in the second half-year. Mr. Nowlan

6.10-7 p.m., Monday, Tuesday, Thursday, Friday, Room 605 Journalism. Fee \$25

es**Y—Plane geometry.** Summer Session evening class. Mr. McMackin

8.15-9.15 p.m., July 6-August 14, Room 202 Hamilton. Fee \$15 (For description see eY1.)

eA1—Trigonometry. 2 points first half-year. Credit I, IV. Fee \$10 Sec. 1—4.10-5 p.m., Tuesday and Friday, Room 712 Journalism. Mr. Curt

Sec. 2—6.10-7 p.m., Tuesday and Friday, Room 712 Journalism. Mr. Belcher

The subject-matter of this course includes trigonometric functions, circular measure, relations between the functions, functions of several angles, inverse functions, trigonometric equations, logarithms, solution of triangles.

Elementary algebra through the quadratic equation is presupposed.

Equivalent to Mathematics A1 or A4 in the Announcement of Columbia College.

eA3—Solid geometry. 3 points first half-year. Mr. Curt 4.10-5.25 p.m., Monday and Thursday, Room 712 Journalism. Credit I, IV. Fee \$15

In addition to the usual theorems on lines, planes and solids, the geometry of the sphere, and the development of space intuition, this course lays special stress upon the purely-logical side of the subject and the nature of mathematical proof.

Plane geometry is presupposed.

The above course is equivalent to Mathematics A2 in the Announcement of Columbia College.

eA4—Trigonometry. Course eA1 repeated. 2 points second halfyear. Mr. Belcher

6.10-7 p.m., Tuesday and Friday, Room 712 Journalism. Credit I, IV. Fee \$10

(For description of this course see eA1 above.)

eA6—Solid geometry. Course eA3 repeated. 3 points second half-year. Mr. Curt

7-8.15 p.m., Monday and Thursday, Room 707 Journalism. Credit I, IV. Fee \$15

(For description see eA3 above.)

e1-Algebra. 3 points first half-year. Mr. Curt

7-8.15 p.m., Tuesday and Friday, Room 712 Journalism. Credit I, IV, V. Fee \$15

This course is designed for students who desire to continue with such more advanced topics as permutations and combinations, determinants with applications to the solutions of linear equations, complex numbers, theory of equations with reference to the solution of numerical equations of higher degree, undetermined coefficients involving the use of finite series, and partial fractions.

Acquaintance with the elements, including the quadratic equation, is presupposed. Equivalent to Mathematics 1 in the Announcement of Columbia College.

e2—Algebra. Course e1 repeated. 3 points second half-year. Mr. Curt

8.20-9.35, Monday and Thursday, Room 709 Journalism. Credit I, IV, V. Fee \$15

e3—Analytical geometry. 3 points first half-year. Mr. Nowlan 8.20-9.35 p.m., Monday and Thursday, Room 709 Journalism. Credit I, IV, V. Fee \$15

Introduction to algebraic geometry, dealing with such topics as coordinate systems, transformations, loci and their equations, the straight line, circle, parabola, ellipse, hyperbola, the geometric interpretation of the general equation of second degree, and the elements of three-dimensional geometry.

eA1 and e1 or their equivalents are presupposed.

Equivalent to Mathematics 3 or 4 in the Announcement of Columbia College.

e4—Analytical geometry. Course e3 repeated. 3 points second half-year. Mr. Nowlan

8.20–9.35 p.m., Monday and Thursday, Room 713 Journalism. Credit I, IV, V. Fee \$15

(For description of course see e3 above.)

e15-16-Calculus. 3 points each half-year. Mr. Nowlan

7-8.15 p.m., Tuesday and Friday, Room 709 Journalism. Credit I, IV, V. Fee \$15 each half-year

The notions and operations of function, differentiation, and integration are presented with applications to geometry, physics and mechanics.

e3 or its equivalent is presupposed.

Equivalent to Mathematics 15-16 in the Announcement of Columbia College.

e75-76—Calculus. 4 points each half-year. Mr. Belcher

6.35-8.15 p.m., Monday and Thursday, Room 712 Journalism. Credit I, IV, V. Fee \$20 each half-year

This course, designed for students intending to qualify for the profession of engineering, is equivalent to Mathematics 75-76 in the Announcement of Columbia College.

## Mechanical Drawing

eW1—Elementary freehand drawing. Six hours drafting per week. First half-year. Mr. Beans

7-10 p.m., Wednesday, 2-5 p.m., Saturday, Room 601 Engineering. Fee \$15

Repeated in second half-year. See p. 36

e1-2—Mechanical drafting.\* 1 hour lecture and 5 hours drafting-room work per week. 2½ points each half-year. Professor Harrington 7.20-10 p.m., Tuesday and Friday, Room 607 Engineering. Credit Ic, V. Fee \$12.50 each half-year

This course presupposes a fair ability in freehand drawing, and is the equivalent of Drafting 1-2 given to college students looking forward to graduate work in engineering.

It should, if possible, be taken in conjunction with e3-4.

The topics covered will be: the use of instruments; geometrical drafting; lettering; orthographic projection; topographical drafting; elementary working drawings.

e3-4—Descriptive geometry. 2 hours lectures. 2 points each halfyear. Professor Harrington

6.30-7.20 p.m., Tuesday and Friday, Room 306 Engineering. Credit Ic, V. Fee \$10 each half-year

This course will cover elementary problems relating to the point, right line, and plane; generation and classification of lines and surfaces; tangent planes to surfaces of single and double curvature; intersection of surfaces by planes; development of single curved surfaces; intersection of single curved surfaces. If possible, this course should be taken in conjunction with e1-2.

e5—Graphics.\* 1 hour lecture and 5 hours drafting-room work per week. 3 points first half-year. Professor Harrington

7.20-10 p.m., Tuesday and Friday, Room 607 Engineering. Credit V. Fee \$15

This course treats of the elements of shades and shadows and perspective. The solution of 35 problems in the shades and shadows of lines, planes and groups of solids, including the niche and torus, gives a fair working knowledge of this sub-

<sup>\*</sup>Students will be required to furnish their own drafting instruments and materials.

ject, while a sufficient number of plates are given in perspective to illustrate in detail all of the principles involved.

Prerequisites: Elements of mechanical drafting and descriptive geometry.

e8—Specialized engineering drafting.\* 1 hour lecture and 5 hours drafting-room work per week. 3 points second half-year. Professor HARRINGTON

7.20-10 p.m., Tuesday and Friday, Room 607 Engineering. Credit V. Fee \$15

This course includes methods used in framing and detailing in structural work; mine timbering; detailed and assembled drawings of ore-cars and skips; working drawing of machine details; tracings, etc., according to the course selected by the student.

Prerequisite: Elements of mechanical drafting.

#### Mechanics

e1—Statics. 3 points first half-year. Mr. WHITTEMORE

6--7.20 p.m., Monday and Thursday, Room 510 Fayerweather. Credit I, IV. Fee \$15

Coplanar statics is treated by both algebraic and graphical methods. Text-book: Maurer's Technical Mechanics, third edition.
Prerequisites: Entrance physics and entrance mathematics.

# Mechanics, Structural, p. 81

# Money and Banking, p. 35

#### Music

# eX1-X2-University Chorus. Professor Walter Henry Hall

8.15-9.45 p.m., Wednesday, arl Hall. Fee for University students expecting credit \$5, otherwise no charge; for all others \$2 for the year. Credit I, with special arrangement if taken in conjunction with another course in music

For the practice and performance of various forms of choral art. It is expected that concerts will be given during the year, when the University Chorus will join with that of Brooklyn (Brooklyn Oratorio Society), forming a large festival chorus. Students will be allowed to become members of this chorus only after application to Professor Hall, and after a voice trial.

e7-8—Elementary harmony. 2 points each half-year. Mr. Ward 4.10-5.50 p.m., Monday, Room 701 Journalism. Credit I, IV. Fee \$10 each half-year

This course treats of the fundamental principles of melody writing, chord-construction and chord interrelation through the medium of four-part writing. It will include the study of triads, seventh and ninth chords and their inversions, suspensions and other non-harmonic devices and simple modulation and will involve the harmonizing of given basses and melodies. A knowledge of notation and ability to play simple exercises on the piano are required for admission.

<sup>\*</sup>Students will be required to furnish their own drafting instruments and materials.

e9-10—Applied harmony. 2 points each half-year. Mr. Kraft 9-10.40 a.m., Saturday, Room 701 Journalism. Credit Ia, IV. Fee \$10 each half-year

The aim of this course is to aid the student in composing music in the small forms, both vocal and instrumental.

Prerequisite: Practice in melodic invention and knowledge of chord combinations.

e53-54—Introductory harmony. 2 points each half-year. Mr.

11-12.40 a.m., Saturday, Room 701 Journalism. Credit IA, IV. Fee \$10 each half-year

The aim of this course is, first, to lead the student to observe the structure of hymn-tunes, chorals and simple compositions, with reference to the melodic movement of parts and to the character and distribution of chords. Second, to give practice in melodic invention and chord combinations expressed in simple constructive work. This work forms the basis for the study of theoretic harmony.

# Negotiable Instruments, p. 31

# Optics

A course in practical optics, outlined below, is given by Extension Teaching. A special circular describing this course and giving full information concerning entrance requirements may be obtained from the Secretary of the University.

#### FIRST YEAR

# (First half-year)

Mathematics eZ1—Algebra, geometry and plane trigonometry. Professor Southall

9–10 a.m., Monday, Tuesday, Wednesday, Thursday, Friday, Room 605 Journalism. Fee \$25 first half-year

Physics A1—General elementary physics. Professor Davis and Mr. Farwell

Sec. 1—10 a.m., Tuesday, Thursday and Saturday, Room 301 Fayer-weather and 2 hours laboratory work. Fee \$20

Sec. 2—7.30-10 p.m., Monday and Thursday, Mr. FARWELL, Room 304 Fayerweather. Fee \$20

Only the evening section is open to women.

Optometry 1—Theoretical optics. Professor Southall

11-12 a.m., Monday, Wednesday and Friday, Room 609 Fayerweather. Fee \$15

Optometry 3—General anatomy with special reference to the anatomy and physiology of the eye. Mr. Woll

4-5 p.m., Wednesday, 4-6 p.m., Thursday, Room 516 Schermerhorn. Fee \$15

## (Second half-year)

**Physics A2—General elementary physics.** Professor Davis and Mr. Farwell

Sec. 1—10 a.m., Tuesday, Thursday and Saturday, Room 304 Fayer-weather. Fee \$20

Sec. 2—7.30-10 p.m., Monday and Thursday, Mr. Farwell, Room 304 Fayerweather. Fee \$20

Only the evening section is open to women.

Optometry 2—Theoretical optics. Professor Southall

10-11 a.m., Monday, Wednesday and Friday (laboratory 2-4 p.m., Friday), Room 510 Fayerweather. Fee \$20

Optometry 4—General anatomy with special reference to the anatomy and physiology of the eye. (Continuation of 3.) Mr. Woll

7-10 p.m., Friday, Room 206 Fayerweather. Fee \$15

Optometry 6-Practical optics. Mr. Woll

7-10 p.m., Wednesday, Room 206 Fayerweather. Fee \$15

Optometry 8—Theoretical optometry. Mr. Cross, and as a special lecturer, Mr. Prentice

8.30-10 a.m., Monday and Friday, Room 206 Fayerweather. Fee \$15

## SECOND YEAR

## (First half-year)

Optometry 9—Theoretical optics. Professor Southall

 $10\text{--}11\,$  a.m., Monday, Wednesday and Friday (laboratory 9–11 a.m., Saturday), Room 609 Fayerweather. Fee \$20

Optometry 11—Physiological optics. Professor Southall

 $2\text{--}3\ \textsc{p.m.},\ \textsc{Monday},\ \textsc{Tuesday}\ \text{and}\ \textsc{Thursday},\ \textsc{Room}\ 301\ \textsc{Fayerweather}.$  Fee \$15

Optometry 13-Practical optics. Mr. Woll

7–10 p.m., Wednesday (other hours by special arrangement), Room 204 Fayerweather. Fee \$15

Optometry 15—Theoretical optometry. (Continuation of 8.) Mr. Cross

8.30-10 a.m., Tuesday and Thursday, Room 204 Fayerweather. Fee \$15 Optometry 17—Pathological conditions of the eye, general hygiene and hygiene of the eye. Dr. Welzmiller

10-12 a.m., Thursday, Room 204 Fayerweather. Fee \$10

Optometry 19—Practical optometry. Mr. Cross

8.30-10 a.m., Monday and Friday, Room 204 Fayerweather. Fee \$15

### (Second half-year)

Optometry 10—Theoretical optics. (Continuation of 9.) Professor Southall

11-12 a.m., Monday, Wednesday and Friday, 1-2 p.m., Friday Room 609 Fayerweather. Fee \$20

Optometry 12—Physiological optics. Professor Southall

2-3 p.m., Wednesday, Room 609 Fayerweather. Fee \$5

Optometry 14—Practical optics. Mr. Woll

Thursday 4-7 p.m. (other hours by special arrangement). Room 204 Faverweather. Fee \$15

Optometry 16—Theoretical optometry. (Continuation of 15.) Mr.

8.30-10 a.m., Tuesday and Thursday, Room 206 Fayerweather. Fee \$15

Optometry 18—Pathological conditions of the eye. (Continuation of 17.) Dr. WELZMILLER

11 a.m.-1 p.m., Thursday, Room 203 Fayerweather. Fee \$10

Optometry 20—Practical optometry. (Continuation of 19.) Mr. CROSS

8.30-10 a.m., Wednesday and Saturday, Room 206 Fayerweather. Fee \$15

## Philosophy

eA1—Principles of science: methods, deductive and inductive logic. Lectures, recitations and individual consultations with the instructor. 3 points first half-year. Dr. Brown

7-8.15 p.m., Tuesday and Friday, Room 307 Philosophy. Credit I. IV. Fee \$15

This course aims at drilling the students in the forms of accurate thinking, and at developing skill in detecting errors in reasoning. The principles of inductive and deductive logic will be taught and applied, both critically and constructively, to a large number of arguments.

Text-book: Dewey's How We Think and Jevon's Studies in Deductive Logic.

This course is the same as Philosophy A1 in Columbia College.

eA2—Principles of science: concepts and problems of philosophy. Lectures, recitations and individual consultations with the instructor. 3 points second half-year. Dr. Brown

7-8.15 p.m., Tuesday and Friday, Room 307 Philosophy. Credit I, IV. Fee \$15

In this course the scientific knowledge of the present day will be used as a basis of interpreting and criticizing fundamental philosophic conceptions of human nature and man's place in the universe.

This course is the same as Philosophy A2 in Columbia College.

eA4-Principles of science: methods, deductive and inductive logic. 3 points second half-year. Dr. Brown

5-6.15 p.m., Tuesday and Friday, Room 307 Philosophy. Credit I, VI. Fee \$15

Course eA1 repeated in the second half-year for students entering at that time. For description see above.

eA5—Principles of science: concepts and problems of philosophy. 3 points first half-year. Dr. Brown

5-6.15 p.m., Tuesday and Friday, Room 307 Philosophy. Credit I, IV. Fee \$15

Course eA2 given in the first half-year. For description see above.

e61-62—History of philosophy. Lectures, discussions and essays.

2 points each half-year. Professor Jones 4.10-5.50 p.m., Wednesday, Room 611 Journalism. Credit I, IV. Fee \$10 each half-year

A survey of the great historical attempts to present a rational and coherent account of the world and of human experience. Lectures, readings in philosophical classics, essays and discussions.

e179-180—Present-day philosophy and the problems of evolution. Half course each half-year. Professor Montague

 $7.40 \hbox{--} 9.30$  p.m., Wednesday, Room 302 Philosophy. Credit II, IV. Fee \$10 each half-year

This course aims to acquaint the student with the leading tendencies of contemporary thought.

The following authors and subjects will be studied: Spencer, and evolutionary materialism; Eucken and evolutionary idealism; James and evolutionary pragmatism; Bergson Macdougal and evolutionary vitalism.

#### Physical Education

(The first three courses are for men students only)

eA1-A2—Gymnastics and games. 2 points each half-year. Dr. Elliott

8.30-9.20 p.m., Monday, Thursday, Saturday. Credit I, IV. Gymnasium fee \$3.50 each half-year. Fee for instruction \$10 each half-year

This course comprises free exercises with and without hand apparatus and chest-weight exercises; simple work on gymnastic apparatus, such as horizontal ladder horizontal bar, ropes, buck, horse, etc., gymnasium games; swimming.

# e**Y1-Y2—Swimming.** Mr. Kennedy

Section 1.—Monday, 8.30-9 or 9-9.30 p.m.

Section 2.—Thursday, 8.30-9 or 9-9.30 p.m.

Section 3.—Saturday, 8.30-9 or 9-9.30 p.m.

Gymnasium fee \$3.50 each half-year. Fee for instruction \$10 each half-year

Students may receive instruction on either Monday, Thursday or Saturday and will have the privilege of using the swimming pool on the remaining evenings.

#### eZ1-Z2—Boxing. Mr. WEEMAN

Section 1.—Thursday, 7.30-8.30 p.m.

Section 2.—Thursday, 8.30-9.30 p.m.

Gymnasium fee \$3.50 each half-year. Fee for instruction \$15 each halfyear Students have the privilege of using the gymnasium and swimming pool Monday, Thursday and Saturday evenings from 7 to 10 o'clock.

e1-2—Hygiene and sanitation. 3 points each half-year. Professor Meylan

5-6.15 p.m., Tuesday and Thursday, Room 302 Engineering. Credit I. IV. Fee \$15 each half-year

First half-year—Health and disease in terms of general biology. Preventive medicine; disease germ carriers, flies, mosquitoes; vaccination, anti-toxins, etc. Sanitation and public hygiene; cleanliness, water supplies, food inspection, garbage, and sewage removal, etc. Industrial diseases and accidents. Constructive

hygiene. National, state and municipal health agencies.

Second half-year—Personal hygiene; diet and beverages; excretion; lungs and ventilation; skin, clothing and bathing; constipation; physical education; exercise, athletics and games; hygiene of the blood and circulation; hygiene of the nervous system; rest; sleep; recreation; mental hygiene; sex hygiene; hygiene of the eyes, ears, nose, throat, teeth and hair; efficiency and vital resistance; colds and minor ailments; first aid to the injured.

# Physics

eA1-A2—Elementary course in general physics. 3 hours lectures and recitations, with 2 hours laboratory work. 4 points each half-year. Mr. FARWELL and Mr. SAYLOR

7.30-9 p.m., Monday and Thursday, Room 304 Fayerweather (lectures). The laboratory work may be taken in either of the following divisions: Section 1—6.30-7.30, p.m., Monday and Thursday; Section 2—9-10 p.m., Monday and Thursday. If the class numbers more than 24, laboratory sections at 'other hours will be formed. Room 401 Fayerweather. Credit I, IV. Fee \$20 each half-year

An introductory course in physics for students who wish to become acquainted with the results, methods and spirit of the science, whether they intend to pursue its study further, or wish an elementary knowledge of physics only as a matter of general interest.

#### **Politics**

c1-2—American government. 3 points each half-year. Professor

 $8.20\mbox{-}9.35$  p.m., Monday and Thursday, Room 614 Kent. Credit I, IV. Fee 15 each half-year

A general survey of the whole field, based largely on Beard's American Government and Politics (edition of 1914), and designed both for those who wish to teach the subject in the schools and for those who wish to gain an insight into the responsibilities of citizenship. Attention will be confined to national government in the first term; to state, municipal, and local government in the second.

Identical with Politics 1-2 in Columbia College.

e105-106—Contemporary American politics. Half course each half-year. Professor McBain

4.10-5.50 p.m., Thursday, Room 614 Kent. Credit II, IV. Fee \$10 each half-year

A brief survey of the development of political issues in the United States since the reconstruction period, followed by a detailed study of specific problems of modern government and politics. These problems will be studied in the light of their historical origin and analyzed from the viewpoint both of theory and of practice. While some attention will be given to the matter of the timeliness of the topics presented, the course will not consist merely of a review of current political events.

e107-108—Comparative government and politics. Half course each half-year. Professor Sait

11--12.40 a.m., Saturday, Room 614 Kent. Credit II, IV. Fee 10 each half-year

An analysis of the English, French, and German governments with emphasis upon their actual operation and the functioning of political parties. In comparing European and American practice the students will be supposed to have some acquaintance with the working of American institutions.

# Public Speaking, p. 40

## Psychology

e1-2—Elements of psychology. Lectures, demonstrations, discussions and recitations. 3 points each half-year. Dr. Poffenberger 4.30-5.45 p.m., Tuesday and Friday, Room 407 Schermerhorn. Credit I, IV. Fee \$15 each half-year

This course is designed to give the student a knowledge of the essential facts and fundamental laws of mind. It serves as an introduction to the more advanced courses in psychology and philosophy, and also meets the requirements of boards of education for a course in general or pure psychology. The first part of the course deals with the nervous system and sensation, the second part with the higher mental processes.

c135-136—Recognition and treatment of abnormal mental states. Lectures, discussions, and actual clinical cases for direct study. Half course each half-year. 2 points each half-year. Dr. BISCH

4.30-6.10 p.m., Wednesday, Room 407 Schermerhorn. Credit II, IV. Fee \$10 each half-year

During the first half-year the topics discussed include, among others, anatomy of the nervous system, individual differences in general, precocity, backwardness, various types of feeble-mindedness, nervous irritability, specialized intellectual defects, moral eccentricities, psychological tests, etc.

During the second half-year the different psychoses, the psychoneuroses, prophylaxis, sexual hygiene, psychoanalysis, hypnosis, etc., will be taken up.

c141-142—Psychology of advertising. Half course each half-year. Lectures, demonstrations, experiments and discussions. 2 points each half-year. Either half may be taken separately. Professor Holling-worth

 $7.40{-}9.30$  p.m., Wednesday, Room 407 Schermerhorn. Credit II, IV. Fee 10 each half-year

A study of the principles, methods and psychological basis of effective advertising and publicity, with reference chiefly to such topics as the nervous basis of mental processes, the tasks of an advertisement, advertising types, media and instruments-their psychological characteristics, the nature, forms, laws and results of attention, the value of the mechanical devices (intensity, magnitude, contrast, motion, position, etc.), the value of the interest incentives (novelty, color, picture, feeling, tone, suggested action, instinct, the comic, etc.), the principles of artistic arrangement of materials-complexity, unity quality, rhythm and rhyme, balance, stability, design; the feeling tone of images, words, objects, associations, etc., association and memory, individual differences, memorability of different kinds of facts; decision and action; the nature and laws of suggestion; the relative strength and persuasiveness of various instincts, interests and forms of appeal; experimental measurements of the "pulling-power" of advertisements, compared with actual business returns; methods of keying copy and of judging beforehand the probable value of an advertisement; the relative legibility of different kinds and sizes of printing types; sex, age and class differences of interest to advertising men; etc., etc. Illustrated by examples from current advertising, and by lantern slides.

e145-146—Applied psychology. Half course each half-year. Lectures, demonstrations and discussions. 2 points each half-year. Either half may be taken separately. Professor Hollingworth

4.10--5.50 p.m., Wednesday, Room 505 Schermerhorn. Credit II, IV. Fee 10 each half-year

The laws and methods of experimental psychology will be applied to such fields as advertising and selling, skill and efficiency, observation and testimony, medicine, eugenics, vocational guidance and individual differences, industrial motion-study, and the diagnosis and treatment of mental defectiveness.

#### ROMANCE LANGUAGES

#### French

cA1-A2—Elementary course. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—4.30–5.45 p.m., Monday and Thursday, Room 713 Journalism. Dr. Alexander

Sec. 2—7-8.15 p.m., Monday and Thursday. Room 603 Journalism. Mr. De Bacourt

Sec. 3—4.30-5.45 p.m., Tuesday and Friday, Room 713 Journalism. Mr. OLINGER

This course is intended for students who have no previous knowledge of French. The instruction is planned so as to enable students to read at sight ordinary French prose. Reading will constitute a large part of the work of the course. In connection with the reading, a careful study of the essentials of grammar and syntax will be taken up together with simple composition. Attention will be paid to correct pronunciation and as far as possible to the understanding of simple spoken French. Equivalent to Course A1-A2 as given in Columbia College.

Text-books: Thieme and Effinger, A French Grammar; Grandgent, Materials for French Composition, Part III; Douay, An Elementary French Reader; Daudet, Trois Contes choisis; Laboulaye, Contes bleus; Vigny, Le Cachet rouge.

esA1—Elementary course. Summer Session evening class. 3 points. Mr. Cohn-McMaster

6-7.15 p.m., July 6-August 14, Room 303 Hamilton. Credit I, IV. Fee \$15

Equivalent to eA1. For description see eA1-A2 above.

eA3-A4—Elementary course. Equivalent to Course eA1. 1½ points each half-year. Dr. FARNSWORTH

9.30--10.45a.m., Saturday, Room 713 Journalism. Credit I, IV. Fee\$7.50 each half-year

This course will enable the student to master the elements of French grammar, the regular verbs, simple idioms, a few of the irregular verbs, and enough of the subjunctive to make possible the reading of easy French. Some attention will be paid as far as possible to the training of the ear in understanding spoken French.

eA5-A6—Elementary course. Equivalent to Course eA2. 1½ points each half-year. Dr. FARNSWORTH

11-12.15 a.m., Saturday, Room 512 Journ lism. Credit I, IV. Fee \$7.50 each half-year

This course is supplementary to eA3-A4.

eA8—Elementary course. 3 points second half-year. Mr. Imbert 4.30-5.45 p.m., Tuesday and Friday, Room 612 Journalism. Credit I, IV. Fee \$15

Equivalent to eA1, given in the second half-year for students who enter at that time. This course should be followed by eA9 in the succeeding half-year. For description see eA1-A2 above.

eA9—Elementary course. 3 points first half-year. Mr. Imbert 4.30-5.45, Tuesday and Friday, Room 612 Journalism. Credit I, IV. Fee \$15

Equivalent to Course eA2. Planned also for students who began the study of French in the Summer Session. It is suitable for persons who have had one year of French.

eB1-B2—Intermediate course—grammar, reading and composition. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—4.30–5.45 p.m., Monday and Thursday, Room 612 Journalism. Professor Bigongiani

Sec. 2—7-8.15 p.m., Tuesday and Friday, Room 612 Journalism. Mr. LIPARI

In Course 1, the work will include a review of the essentials of grammar, and in Course 2, some oral practice in reading and conversation. The reading should consist of narrative and historical texts, and several plays.

Text-books: Anatole France, Le Livre de mon Ami: Victor Hugo, Quaire vinglireize; Daudet, Tartarin de Tarascon; René Bazin, Les Oberlé; Augier et Sandeau, Le Gendre de M. Poirier; Fontaine, French Composition.

Equivalent to Course B1-B2 as given in Columbia College.

eB3-B4—Intermediate course—grammar, reading and composition. Equivalent to Course e1. 1½ points each half-year. Dr. Farns-worth

12.15-1.30 p.m., Saturday, Room 512 Journalism. Credit I, IV. Fee \$7.50 each half-year

(For description of course see eB1-B2.)

eB5-B6—Intermediate course. More advanced than eB3-B4. Equivalent to the last half of eB2. 1½ points. Dr. FARNSWORTH 2-3.15 p.m., Saturday, Room 512 Journalism. Fee \$7.50

e3-4—Practical course and introduction to French literature. Composition, readings, lectures. 3 points each half-year. Professor MULLER

4.30-5.45 p.m., Tuesday and Friday, Room 301 Mines. Credit I, IV. Fee \$15 each half-year

The work is to consist of dictations and conversations on the history of French literature, supplemented by the reading of selected works from representative authors. Students will also be required to write themes in French.

Text-books: Voltaire, Le Siècle de Louis XIV; Bossuet, Oraisons Funèbres; Taine, L'Ancien Régime; Balzac, Eugénie Grandel; Renan, Souvenirs d'Enfance et de Jeunesse; Ste. Beuve, Causeries du Lundi (1 vol. Garnier); Oxford Book of French Verse.

e5-6—General survey of French literature in the seventeenth century. 3 points each half-year. Professor Loiseaux

4.30-5.45 p.m., Tuesday and Friday, Room 302 Mines. Credit I, IV. Fee \$15 each half-year

The subject of the course is the history of French literature during the century of Louis XIV. The principal authors studied will be, Descartes, Pascal, Bossuet, Madame de Sévigné, La Rochefoucauld, La Bruyère, Corneille, Molière, Racine, Boileau and La Fontaine. The course is conducted entirely in French.

Text-books: Lanson, Histoire de la Littérature Française (eleventh edition), and the works of the authors named above.

Equivalent to Course 5-6 as given in Columbia College and Barnard College.

e9-10—Advanced composition and practice in speaking French. 3 points each half-year. Mr. FORTIER

4.30-5.45 p.m., Monday and Thursday, Room 301 Mines. Credit I, IV. Fee \$15 each half-year

The objects of this course are to give students a thorough appreciation, and so far as possible, mastery of the French language as an instrument of expression. The exercises will be of composition, reading aloud, reciting and letter writing. A general study will be made of the constitution of the language and of the different ways ideas present themselves to the English and French mind. During the second half-year, a careful study will be made of the principles of French versification and diction.

Text-books: Larive et Fleury, Troisième année de Grammaire; La Fontaine, Fables; Leune, Difficult Modern French; Blanchard, French Idioms.

For outside reading: Reinach, L'Eloquence politique en France au XIXe siècle.

e11-12—French literature, especially prose, after the classical period. 3 points each half-year. Professor Muller

7–8.15 p.m., Monday and Thursday, Room 308 Philosophy. Credit I, IV. Fee \$15 each\_half-year

The object of the course will be to make the students acquainted with the prose masterpieces that have been produced in France since the beginning of the eighteenth century. The writers chiefly studied will be Montesquieu, Voltaire, Rousseau, Diderot, Le Sage, Chateaubriand, Victor Hugo, Balzac; George Sand, Michelet, Renan, Sainte-Beuve, Emile Augier and Alexandre Dumas Fils.

# e13-14—French literature, especially poetry, after the classical period. 3 points each half-year. Mr. Fortier

4.30-5.45 p.m., Tuesday and Friday, Room 306 Mines. Credit I, IV. Fee \$15 each half-year

The work will be similar to the work done in Course e11-12 but will be concerned mainly with the poets. The writers chiefly studied will be Voltaire, André Chénier, Lamartine, Victor Hugo, Vigny, Alfred de Musset, Gautier, Banville, Leconte de Lisle, Sully-Prudhomme, Hérédia and Edmond Rostand.

# e103-104—History of French literature in the eighteenth century. Full course each half-year. Professor Loiseaux

4.30-5.45 p.m., Monday and Thursday, Room 302 Mines. Credit II, IV. Fee \$20 each half-year

The subject of the course is the history of French literature during the period, the intellectual life of which preceded the breaking out of the French Revolution. The principal authors studied will be Voltaire, Montesquieu, Jean-Jacques Rousseau, Diderot, d'Alembert and Beaumarchais. Some attention will be paid to the novelists, especially to Le Sage and Prévot.

Text-books: Lanson, Histoire de la Littérature Française and the works of the authors named above.

Equivalent to Course 103-104 as given under the Faculty of Philosophy of Columbia University.

# e105-106—History of French literature in the nineteenth century. Full course each half-year. Professor Weeks

7–8 15 p.m. Monday and Thursday 'Room 508 Ph

7–8.15 p.m., Monday and Thursday, Room 508 Philosophy. Credit II, IV. Fee \$20 each half-year

The work will consist mainly of a study of French romanticism and of the reaction against romanticism. It is strongly recommended not only to the students of French literature, but to those interested in comparative literature.

Text-books: Lanson, Histoire de la Littérature Française, Wright's History of French Literature and the works of the authors studied.

# c221-222—Special topics in French literature. M. Paul Havard, visiting French lecturer. Full course each half-year

4.30-5.45 p.m., Monday and Thursday, Room 306 Mines. Credit IV. Fee \$20 each half-year

This course consists of the treatment of a special subject in French literature selected by the French lecturer designated during each summer by the University of Paris and the French Ministry of Public Instruction. It is supplemented by the linguistic, esthetic and historical explanations of passages of the authors studied. It is conducted entirely in French.

Will not be given unless elected by at least six students.

#### Italian

e1-2—Elementary course. 3 points each half-year. Professor Livingston

7-8.15 p.m., Monday and Thursday, Room 405 Avery. Credit I, IV. Fee \$15 each half-year

The aim of this course is to impart an accurate reading knowledge of modern Italian, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in Course 2 special attention will be paid to Italian composition.

c3-4-Advanced course. 3 points each half-year. Professor Living-

4.30-5.45 p.m., Tuesday and Friday, Room 306 Engineering. Credit I, IV. Fee \$15 each half-year

In this course a great deal more reading is done than in e1-2. The two courses together may be considered a preparation to the graduate courses in the University.

Spanish

e1-2—Elementary course. 3 points each half-year. Credit I, IV. Fee \$15 each half-year.

Sec. 1—6.10-7.25 p.m., Tuesday and Friday, Room 408 Avery. Mr. HAYDEN

Sec. 2—3.10-4.25 p.m., Monday and Thursday, Room 713 Journalism. Dr. Farnsworth

The aim of this course is to impart an accurate reading knowledge of modern Spanish, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in Course 2 special attention will be paid to Spanish composition.

Text-books: Loiseaux, Spanish Grammar, Elementary Spanish Reader, Spanish Composition; P. A. de Alarcón, El Capitán Veneno; Galdós, Marianela, Doña Perfecta; Carrión y Aza, Zaragüeta. Text-books subject to change.

Outside reading: Valera, El Pajaro Verde; Le Sage, Gil Blas (Padre Isla's translation).

Equivalent to Course 1-2 as given in Columbia College.

e3-4—Advanced course. 3 points each half-year. Professor Geric 4.30-5.45 p.m., Monday and Thursday, Room 306 Engineering. Credit I, IV. Fee \$15 each half-year

Second year course. A continuation of Course e1-2, in which emphasis will be placed on rapid reading of modern prose, on advanced composition and conversation.

Text-books: Hills and Ford, A Spanish Grammar; Crawford's Spanish Composition; Valdés, José; Galdós, Marianela; Valera, El Comendador Mendoza. There will be some outside reading in connection with the course.

Equivalent to Course 3-4 as given in Columbia College.

e5-6—Practical course and introduction to Spanish literature. 3 points each half-year. Credit I, IV. Fee \$15 each half-year. Professor Gerig

4.30-5.45 p.m., Tuesday and Friday, Room 301 Engineering

The work consists of compositions, conversations and dictations on the history of Spanish literature supplemented by the reading of selected works by representative authors. Students will be required to write themes and reports in Spanish.

Text-books: Fitzmaurice-Kelly, Oxford Book of Spanish Verse (1913); Fitzmaurice-Kelly, History of Spanish Literature (preferably the French version, 1913); Calderón, Selected Plays, ed. by Macoll; Lope de Vega, Obras Escogidas; Pereda, Pedro Sánchez; Cervantes, Don Quijote, etc.

c8—Elementary course. 3 points second half-year. Mr. Hayden 7.30-8.45 p.m., Tuesday and Friday, Room 408 Avery. Credit I, IV. Fee \$15

A course for students who have no knowledge of Spanish. Equivalent to course e1 above.

e9—Elementary course. 3 points first half-year. Mr. Hayden 7.30-8.45 p.m., Tuesday and Friday, Room 408 Avery. Credit I, IV. Fee \$15

Follows Course e8 and is planned for students who have a fair knowledge of Spanish.

#### Secretarial Courses

The Department of Extension Teaching has provided for men and women a series of courses in secretarial studies. These courses are given in the afternoon and evening.

The object of these courses is properly to equip students who desire to become private secretaries or to hold important positions in offices as assistants to public officials or to persons engaged in professional pursuits. The students who undertake these courses in full must have had a high school education or its equivalent. A complete series will demand three years, although this may be reduced by attendance at Summer Sessions or by obtaining advanced standing on the presentation of evidence of having completed any course or its equivalent. A certificate will be issued upon the satisfactory completion of the series.

These courses are fully described in a special pamphlet which may be secured upon request.

#### Commerce, Accounts and Finance

**Economics** e1-2—Principles of economics. 3 points each half-year. Dr. Haig

7.30–10 p.m., Saturday, Room 512 Journalism. Credit I, IV. Fee 15 each half-year

**Economics** e3-4—**Money and banking.** 2 points each half-year. Professor Agger

7.40-9.30 p.m., Monday, Room 603 Journalism. Credit I, IV. Fee \$10 each half-year

Accounting e1-2—Elementary bookkeeping. 3 points each halfyear. Fee \$15 each half-year

Sec. 1—7.40-9.30 p.m., Monday, Room 503 Journalism. Mr. Baltz Sec. 2—9-10.40 a.m., Saturday, Room 503 Journalism. Mr. Hughes

Commerce e3-4—Business organization and administration. 2 points each half-year. Dr. Stevens

7.40-9.30 p.m., Monday, Room 512 Journalism. Fee \$10 each half-year

Commercial law e1—Contracts. 2 points first half-year. Professor GIFFORD

7.40-9.30 p.m., Tuesday, Room 515 Kent. Fee \$10 each half-year

Commercial law e4—Negotiable instruments. 2 points second half-year, Mr. Currier

7.40-9.30 p.m., Wednesday, Room 515 Kent. Fee \$10

# English

Note.—Secretarial students are required to take English eA1-A2, English eB1-B2, and two of the other English courses here described.

eA1-A2—English composition. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—7-8.15 p.m., Monday and Thursday, Room 307 Philosophy. Dr. Wolff

Sec. 2-7-8.15 p.m., Tuesday and Friday, Room 614 Kent. Mr. HALLER

Sec. 3—3.10-4.25 p.m., Tuesday and Friday. First half-year, Room 507 Journalism. Dr. Taylor

eB1-B2—English composition. 2 points each half-year. Credit I, IV. Dr. Wolff

8.45-9.35 p.m., Monday and Thursday, Room 302 Philosophy. Fee \$10 each half-year

e19-20—History of American literature. 2 points each half-year. Professor Van Doren

9–10.40 a.m., Saturday, Room 709 Journalism. Credit I, IV. Fee \$10 each half-year

e23-24—English literature from 1830 to 1890. 2 points each half-year. Professor Patterson

7.40–9.20 p.m., Wednesday, Room 605 Journalism. Credit I, IV. Fee \$10 each half-year

e43-44—Typical forms of English literature. The lyric. 2 points each half-year. Professor Tucker

11-12.40 a.m., Saturday, Room 712 Journalism. Credit I, IV. Fee \$10 each half-year

#### French

eA1-A2—Elementary course. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—4.30-5.45 p.m., Monday and Thursday, Room 713 Journalism. Dr. Alexander

Sec. 2—7-8.15 p.m., Monday and Thursday, Room 603 Journalism. Mr. DeBacourt

Sec. 3—4.30–5.45 p.m., Tuesday and Friday, Room 713 Journalism. Mr. OLINGER

eB1-B2—Intermediate course. Grammar, reading and composition. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—4.30-5.45 p.m., Monday and Thursday, Room 612 Journalism. Professor Bigongiani

Sec. 2—7-8.15 p.m., Tuesday and Friday, Room 612 Journalism. Mr. LIPARI

e9-10—Advanced composition and practice in speaking French. 3 points each half-year. Mr. Fortier

 $4.30\text{--}5.45~\mathrm{p.m.},$  Monday and Thursday, Room 301 Mines. Credit I, IV. Fee \$15 each half-year

#### German

eA1–A2—Elementary course. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—4.30–5.45 p.m., Tuesday and Friday, Room 512 Journalism. Mr. Eyster

Sec. 2—8.35–9.50 p.m., Monday and Thursday, Room 605 Journalism. Mr. Werner

Sec. 3—7–8.15 p.m., Tuesday and Friday, Room 512 Journalism. Mr. Schulze

eB1-B2—Intermediate course. 3 points each half-year. Credit I, IV. Fee \$15 each half-year

Sec. 1—4.30-5.45 p.m., Tuesday and Friday, Room 609 Journalism. Mr. Schulze

Sec. 2—7-8.15 p.m., Monday and Thursday, Room 610 Journalism. Mr. Werner

e3-4—Composition and oral practice. 1½ points each half-year. Credit I, IV. Fee \$7.50 each half-year

Sec. 1—11–12.15 a.m., Saturday, Room 610 Journalism. Dr. Betz Sec. 2—8.30–9.45 p.m., Monday, Room 712 Journalism. Dr. Betz

#### History

eA1-A2—General history. 3 points each half-year. Dr. Humphrey 8.20-9.35 p.m., Tuesday and Friday, Room 612 Journalism. Credit I, IV. Fee \$15 each half-year

#### Politics

e1-2—American government. 3 points each half-year. Professor Sait

8.20-9.35 p.m., Monday and Thursday, Room 614 Kent. Credit I, IV. Fee \$15 each half-year

# Spanish

c1-2—Elementary course. 3 points each half-year. Mr. HAYDEN 6.10-7.25 p.m., Tuesday and Friday, Room 302 Philosophy. Credit I, IV. Fee \$15 each half-year

# Stenography and Typewriting

Stenography e1—Elementary stenography. 4 points first halfyear. See page 80

#### Elective Studies

Commercial English e1-2—Business English and commercial correspondence. Mr. Duncan

7.40-9.30 p.m., Friday, Room 511 Journalism. Fee \$20 each half-year

Secretarial correspondence e1-2—Letter writing. Miss CLEVELAND 4.30-5.45 p.m., Monday and Thursday, Room 611 Journalism. Fee \$15 each half-year

Library training e21-22—Indexing, filing and cataloguing as applied in business. Miss Wallace

8.20-10 p.m., Monday, Room 511 Journalism. Fee \$10 each half-year

# Semitic Languages

- e1-2—Biblical Hebrew. Elementary course. Grammar and selections from the Pentateuch and Psalms. 2 points each half-year. Mr. MARGOLIS
- 3.10-4 p.m., Tuesday and Friday, Room 706 Philosophy. Fee \$10 each half-year
- e3-4—Biblical Hebrew. Advanced course. 2 points each half-year. Mr. Margolis
- 5.10--6 p.m., Tuesday and Friday, Room 302 Philosophy. Fee \$10 each half-year

During the first half-year the books of I and II Samuel will be read with special attention to Hebrew syntax. In the second half-year Mishnic Hebrew will be studied in the Pirke Aboth (Ethics of the Fathers).

- e5-6—Jewish history and literature. 2 points each half-year. Mr. Margolis
- 4.10--5 p.m., Tuesday and Friday, Room 413 Have meyer. Fee \$10 each half-year

Consists of lectures on Jewish history from the period of the conclusion of the Babylonian Exile to the present day. Particular attention will be directed to the treatment of Jewish Post-Biblical literature, to the history of the Jews in the various lands of the Diaspora and to modern Jewish cultural movements.

# Secretarial Correspondence

e1-2—Letter writing. 3 points each half-year. Miss CLEVELAND 4.30-5.45 p.m., Monday and Thursday, Room 611 Journalism. Fee \$15 each half-year

This course is intended not only for young women desiring employment as socia secretaries but also for those wishing to gain facility in the various forms of letter writing incident to leisure and wide activity. The aim is to familiarize the writer with the best current usage as to form and arrangement, and to develop ease and attractiveness of expression. The work will take in a brief consideration of the place of letter writing in life and literature; a careful study of the best published letters, with discussion establishing the elements they contain which make for human interest; a survey of postal regulations, and constant practice in writing and answering the various forms of letters: both practical and friendly, formal and informal—and letters upon special occasions such as death, loss or departure, telegrams, cards, and acknowledgments. Students will be expected to have a grasp of elementary English grammar.

## Sociology

e141—Social problems: population and population movements. Lectures, readings and discussions. Half course first half-year. Mr. Shenton

7.40-9.30 p.m., Thursday, Room 615 Kent. Fee \$10. Credit II, IV

A series of studies of population and population movements. Social significance of immigration and intra-migration. Application of the theories of social groupings to problems of race mixture, birth rate and death rate, urban congestion and rural social conditions.

e142—Social problems: social betterment. Lectures, readings and discussions. Half course second half-year. Mr. Shenton

7.40-9.30 p.m., Thursday, Room 615 Kent. Fee \$10. Credit II, IV

The development and social aspects of movements for human betterment, including eugenics and socialized philanthropy. Problems of abnormal society. Special social problems. Constructive criticism of methods of social reform.

e143—Social institutions: institutions of component society. Lectures, readings, discussions and exercises. Mr. Shenton

7.40-9.30 p.m., Wednesday, Room 615 Kent. Credit II, full course first half-year. Fee \$20. Credit II, half course. Fee \$10. Credit I, IV, two points. Fee \$10

Origin, development and present functions of the more fundamental social institutions and their present tendencies. Those institutions having their origin in the earliest forms of society, *i.e.*, kinship, religion and politics, will be discussed during this semester.

Full course credit will be given only to students who have satisfactorily completed a study of some particular social institution and have passed an examination upon a group of specially assigned readings.

e144—Social institutions: institutions of constituent society. Lectures, readings, discussions and exercises. Mr. Shenton

7.40-9.30 p.m., Wednesday, Room 615 Kent. Credit II, full course second half-year. Fee \$20. Credit II, half course. Fee \$10. Credit I, IV, two points. Fee \$10

Origin, development, present functions and modern tendencies of the social institutions that have arisen since the beginning of civilization and directive social organization. Institutions associated with social control by education, law (including property and contract), social organization and collective effort.

e151—Principles of sociology. Lectures, readings, discussions and exercises. First half-year. Mr. Shenton

7.40-9.30 p.m., Monday, Room 503 Kent. Credit II, full course. Fee \$20. Credit II, half course. Fee \$10. Credit I, IV, 2 points. Fee \$10

A course in social theory. The scope and methods of sociology. Theories of social evolution, social causation and organization. The development of social consciousness and of the social mind. Comparative study of various theories of social progress. Democracy and social justice.

Credit for full course will be given only to those who, in addition to the regular work, complete and are examined in a course of specially assigned readings, and who have done certain research or field work.

Text-book: Giddings, Descriptive and Historical Sociology.

e152—Historical evolution of society. Lectures, readings and discussions. Second half-year. Mr. Shenton

7.40-9.30 p.m., Monday, Room 503 Kent. Credit II, full course. Fee \$20. Credit II, half course. Fee \$10. Credit I, IV, 2 points. Fee \$10

The origin of man and beginnings of association. Evolution of human association and of the social mind. Studies of the integration and disintegration of various civilizations. Rise of liberty and democracy. An historical study of progress in the light of social theories.

Extra credit on conditions similar to those in e151.

Text-book: Giddings, Principles of Sociology.

# Social Science: Special Courses

c150—The modern world. Lectures, readings and reports. Full course second half-year; or half-course (e150a). Fee \$20, or \$10 (e150a). Dr. Slosson

4.30-5.45 p.m., Tuesday and Friday, Room 712 Journalism. Credit II A general survey of the physical, economic, social and political factors which determine twentieth century civilization.

e161-162—History of social reform in the United States. Lectures, readings and discussions. Dr. Levine

7.40-9.30 p.m., Tuesday, Room 308 Philosophy. Credit II. Full course each half-year (e161-162), fee \$20 each half-year; half-course each half-year (e161a-162a), fee \$10 each half-year

A survey of the industrial and economic changes during and after the Civil War; problems of currency, transportation, taxation, trusts, labor, and government; resulting economic and political efforts to meet these problems; growth of economic organizations, like granges, trades unions, cooperative societies, etc.; rise of reform

parties (Greenback-Labor, Anti-Monopoly, Single Tax, The People's Party, The Progressive Party); analysis of the platforms of the Republican and Democratic parties in the light of economic and social conditions. Historical setting of socialism, syndicalism, industrial unionism, in their relation to the main currents of social reform, emphasizing the evolution of political and economic organizations and the development of new social ideas, such as governmental regulation, social insurance, a living wage, conservation, etc. The purpose of the course is to clarify the historical and economic background of the main reform tendencies of the present day.

#### STENOGRAPHY AND TYPEWRITING

## Morning, Afternoon and Evening Classes

These courses are designed for men and women who desire to become secretaries or shorthand and typewriting teachers. The courses are completed in the first half-year and will be repeated in the second half-year.

A thorough presentation of the Isaac Pitman system will be given. The successful completion of the fundamental principles of shorthand will be followed by a presentation of phrases, contractions, commercial and legal work.

Outside reading: Columbia University is in possession of a shorthand library consisting of over 1,200 volumes which will be placed at the disposal of students in stenography.

Scientific typewriting. Touch operating as practised by rapid operators. Typewriting machines will be provided for the use of the students.

The courses in stenography and typewriting will be under the general supervision of Mr. F. R. Beygrau, Room 510 Journalism. Office hours 3.45-4.15 p. m. daily (except Saturday).

## e1-2-Elementary stenography. Mr. HARNED

- 10-11 a.m., and 1-2 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 610 Journalism. Fee \$35 each half-year
- es1—Stenography. Summer Session evening class. 3 points. Mr. Healey
  - 7-8 p.m., July 6-August 14, Room 601 Journalism. Fee \$15
- es2—Typewriting. Summer Session evening class. 2 points. Mr. Healey
  - 8-9 p.m., July 6-August 14, Room 601 Journalism. Fee \$10
  - e3-4-Elementary stenography. Mr. Beygrau
- 4.15-5.15 p.m., Monday, Tuesday, Thursday and Friday. Room 610 Journalism. Fee \$20 each half-year
  - e5-6-Elementary stenography. Mr. HARNED
- $7.15{-}9.10$  p.m., Tuesday and Friday, Room 601 Journalism. Fee \$15 each half-year
  - e7-8-Intermediate stenography. Mr. HARNED
- 11-12 a.m., 2-3 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 610 Journalism. Fee \$35 each half-year
  - e9-10-Intermediate stenography. Mr. Beygrau
- 5.15--6.15 p.m., Monday, Tuesday, Thursday and Friday, Room 603 Journalism. Fee \$20 each half-year

e11-12-Intermediate stenography. Mr. HEALEY

7.15-9.10 p.m., Tuesday and Friday, Room 603 Journalism. Fee \$15 cach half-year

e15-16-Advanced stenography. Mr. HARNED

5.15-6.15 p.m., Monday, Tuesday, Thursday and Friday, Room 601 Journalism. Fee \$20 each half-year

e19-20-Elementary typewriting. Mr. LOGAN

11-12 a.m., and 2-3 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 601 Journalism. Fee \$25 each half-year.

c21-22-Elementary typewriting. Mr. HEALEY

5.15-6.15 p.m., Monday, Tuesday, Thursday and Friday, Room 601 Journalism. Fee \$15 each half-year

e23-24-Elementary typewriting. Mr. Logan

6.15-7.15 p.m., Tuesday and Friday, Room 601 Journalism. Fee \$10 each half-year

e25-26-Intermediate typewriting. Mr. LOGAN

10-11 a.m., and 1-2 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 601 Journalism. Fee \$25 each half-year

e27-28-Intermediate typewriting. Mr. HARNED

4.15–5.15 p.m., Monday, Tuesday, Thursday and Friday, Room 601 Journalism. Fee \$15 each half-year

e35-36—Methods of teaching stenography and typewriting. Mr. Healey

4.15-5.15 p.m., Tuesday and Friday, Room 603 Journalism. Fee \$10 each half-year

e37-38-Office training. Mr. Beygrau

4.15-6.15 p.m., Wednesday, Room 601 Journalism. Fee \$10 each half-year

e39—Stenotypy. Mr. Beygrau. A course will be given if called for. Hours to be arranged.

### Structural Mechanics

Note.—Courses eX1-2, eZ1, eZ2, eZ3-4, are intended solely for men who are engaged in practical work. They do not correspond to day courses and no university credit is allowed for them. For specific courses in architecture, especially in building materials, see pages 21-24.

eX1-X2—Elements and applications of algebra, geometry and trigonometry. Mr.  $C_{\rm LARK}$ 

6.10--7 p.m., Monday and Thursday, Room 408 Avery. Fee \$15 each half-year

The introductory work of this course will consist of a drill in the principles and applications of elementary algebra through quadratics. This will be followed by a brief treatment of a few of the most fundamental propositions of geometry. The last part of the course will be devoted to plane trigonometry and its applications to problems of a purely practical nature, and will include drill in the use of logarithms and the slide rule.

eZ1—Elements of coplanar statics. First half-year. Professor Burnside

6.10-7 p.m., Tuesday and Thursday, Room 405 Avery. Fee \$15

Algebraic and graphic methods are used in parallel; composition and resolution of forces; principles of equilibrium; determination of stresses in simple jointed frames, such as trusses and cranes; centres of gravity and centroids.

Text-book: Maurer's Technical Mechanics, third edition.

Prerequisites: Course eX1-X2, or its equivalent.

eZ2—Elements of mechanics of materials. Second half-year. Professor Burnside

6.10-7 p.m., Tuesday and Thursday, Room 405 Avery. Fee \$15

Continuation of Course eZ1. Moments of inertia and radii of gyration of plane areas, built up beam and column sections; direct tension, compression and shear; strengths of beams, columns and riveted joints; deflection of beams.

Text-book: Strength of Materials by Maurer.

Prerequisite: Course eZ1.

eZ3-Z4—Designs and details of framed structures. Professor Schroeder

7-9.30 p.m., Monday and Thursday, Room 607 Engineering. Fee \$25 each half-year

Continuation of Course eZ2. Complete designs, details and estimates of costs will be made for a wooden roof truss, a steel truss, a plate girder bridge and other structures or parts of structures illustrating applications of the fundamentals in the theory of design.

A special feature of the course is that all of the study, calculations and execution necessary for each complete design will be done in the drafting-room under the direction of the instructor.

Essentially all of the information required by the student relative to the solution of each design will be given in notes prepared by the instructor. The notes will be used as a text; they illustrate the calculations for, and lay-outs of, structures similiar to those assigned as problems and will be supplemented by occasional lectures.

Prerequisites: Mechanical drafting e1-2, Structural mechanics eZ1 and 2, or their equivalents.

Surveying, p. 36

## Zoology

c1-2—Elementary biology and zoology. Lectures and laboratory 2 points each half-year. Professor Calkins (first half-year), Professor McGregor (second half-year)

1.30-2.30 p.m., Saturday, Room 619 Schermerhorn. (Laboratory, 2.30-4.20 p.m., Saturday, Room 618 Schermerhorn.) Credit I, IV. Fee \$10 each half-year. An additional fee of \$2 each half-year is charged for materials

The earlier part of this course is designed to give the student an elementary knowledge of the basic principles of biology and the general physiology of organisms. Protoplasm, the cell, unicellular organisms, plant and animal in relation to each other and to the inorganic world are the chief topics discussed in the first half. The second term is mainly devoted to the study of the structures and adaptations of some of the more important groups of animals, with dissection of types in the laboratory. Among the types studied may be mentioned amœba, paramecium, hydra, earthworm, lobster, grasshopper, clam and dogfish.

A text-book will be used and collateral reading assigned.

Prerequisite: An elementary knowledge of chemistry is desirable.

### ACADEMIC CALENDAR

314—Sept. 16—Wednesday, Registration begins
Sept. 23—Wednesday, First half-year (161st year) begins
Sept. 24—Thursday, Extension Teaching courses begin
Oct. 3—Saturday, last day for changes in registration
Oct. 20—Tuesday, Stated Meeting of University Council

Nov. 3—Tuesday, Election Day, holiday
Nov. 25—Wednesday, University Service in St. Paul's Chapel
Nov. 26—Thursday, to November 28, Saturday, inclusive—
Thanksgiving holidays Dec. 6-Sunday, Commemoration Service in St. Paul's Chapel

Dec. 15—Tuesday, Stated Meeting of University Council

Dec. 21-Monday, to Jan. 2, 1915, Saturday, inclusive-Christmas holidays

915-Jan. 25-Monday, Examinations (Extension Teaching) begin

Jan. 28—Thursday, registration second half-year begins

3—Wednesday, Second half-year begins. University Service in St. Paul's Chapel

Feb. 13—Saturday, last day for changes in registration Feb. 16—Tuesday, Stated Meeting of University Council Feb. 22—Monday, Washington's Birthday, holiday

1-Thursday, to Apr. 5, Monday, inclusive-Easter holi-Apr. days

Apr. 20-Tuesday, Stated Meeting of University Council

May 24-Monday, Final examinations (Extension Teaching) begin

May 30-Sunday, Baccalaureate service

May 31—Monday, Memorial Day, holiday
June 2—Wednesday, Commencement Day
July 7—Wednesday, Sixteenth Summer Session opens
Aug. 17—Tuesday, Sixteenth Summer Session closes

Sept. 22—Wednesday, Registration begins

Sept. 29-Wednesday, First half-year (162nd year) begins

The academic year is thirty-seven weeks in length, ending on the second Wednesday in June although the actual class work is uniformly assigned

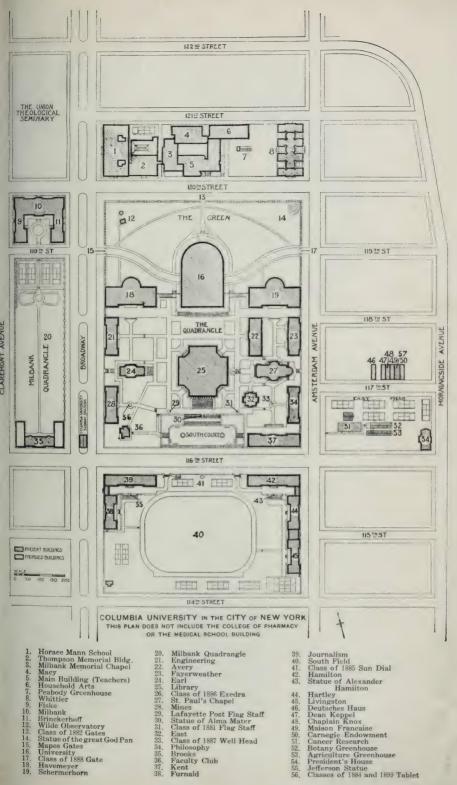
to fifteen weeks each half-year.

The exercises of the University are suspended on Election Day, Thanksgiving Day and the two following days, for two weeks at Christmas, (December 21, 1914, to January 2, 1915, inclusive), on Washington's Birthday, from the Thursday before Good Friday through the following Monday, and on Memorial Day.

The complete academic calendar will be found in the University Catalogue and, so far as it refers to the students studying under any faculty,

in the announcement of that faculty.





Faculty Club Kent Furnald Havemeyer Schermerhorn



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### OFFICERS OF EXTENSION TEACHING 1915-1916

NICHOLAS MURRAY BUTLER, President of the University

### Administrative Board

James Chidester Egbert, Ph.D.

Professor of Latin

Director of Extension Teaching and the Summer Session

Frederick J. E. Woodbridge, LL.D.

Johnsonian Professor of Philosophy

Dean of the Graduate Faculties

Frederick Paul Keppel, Litt.D.

Dean of Columbia College

VIRGINIA C. Guidens Frederick Ph.D.

VIRGINIA C. GILDERSLEEVE, Ph.D.

Dean of Barnard College

PAUL MONROE, Ph.D.

Professor of the History of Education

Frank Allen Patterson, Ph.D.

Assistant Professor of English
Assistant to the Director, Morningside

MILTON JUDSON DAVIES, A.B.

Assistant to the Director, Institute of Arts and Sciences

J. Montgomery Gambrill, A.M.

Assistant to the Director, in charge of Extramural Centres

KATHARINE C. REILEY, Ph.D.

Assistant to the Director, Adviser to Women Students

# University Officers of Administration

FRANK DIEHL FACKENTHAL, A.B.

Secretary of the University

FRANK A. DICKEY, A.B.

Registrar of the University

CHARLES S. DANIELSON

Bursar

## OFFICERS OF INSTRUCTION

EUGENE E. AGGER
A.B., Cincinnati, 1901; A.M., 1902; Ph.D., Columbia, 1907; lecturer, instructor, assistant professor, 1907-
LUTHER HERBERT ALEXANDER French
A.B., Toronto, 1883; A.M., 1885; Ph.D., Columbia, 1911; professor, University
of Alberta, 1907-08; instructor, College of the City of New York, 1908-12; instructor, Columbia, 1912-
GEORGE MARCUS ALLEN
B.S.E.M. (mining engineering) Utah, 1908; B. Architecture, Columbia, 1914 instructor, Summer Session, 1911-; instructor, Extension Teaching, 1913-
EDGAR R. ALTENBURG
HARRY M. AYRES English
A.B., Harvard, 1902; Ph.D., 1908; lecturer, instructor and assistant professor, Columbia, 1908-
Matthew Gruenberg Bach German
A.B., Trinity (Conn.), 1910; A.M., Columbia, 1911; instructor, Summer Session, 1915.
RICHARD FRANZ BACH Architecture
A.B., Columbia, 1908; lecturer, 1910-12; curator, 1912-; instructor, Extension Teaching, 1911-; Summer Session, 1912-
PIERRE DE BACOURT French
B.A., Lyons, 1885-86; B.S., Lyons, 1887; B.L., Paris, 1892; Licencié en Droit, Nancy, 1893; American correspondent for Le Journal des Débats, 1909-15; lecturer, School of Journalism, Columbia, 1912-
JOHN CLARK BAKER
B.S., Upper Iowa University, 1910; B.Pd. and M.Pd., New Mexico Normal University, 1913; A.M., Columbia, 1915.
FRANK PIERCE BALTZ
Member New York State Bar, 1906; LL.B., New York, 1907; B.C.S., 1909; teacher of commercial branches, High School of Commerce, 1902–10; chairman commercial department, Eastern District High School, 1910–14; chairman, commercial department Evander Childs High School, 1914–
SARAH F. BARROW Secretarial correspondence
Ph.B., Chicago, 1900; A.M., 1902; instructor, Wolcott School, Denver, 1903-1913.
JESSE E. BEANS Mechanical drawing
Assistant director, Minneapolis School of Fine Arts, 1905-07; assistant and instructor, Columbia, 1910-14.
DONALD RAY BELCHER
A.B., Kalamazoo, 1909; professor, Hanover College (Ind.), 1910-14.
GOTTLIEB A. BETZ
A.B., Rochester, 1901; A.M., Pennsylvania, 1911; Ph.D., 1913; instructor in Greek and history, Wagner College, Rochester, 1903-10; University scholar in Germanic languages, Pennsylvania, 1910-11; Harrison Fellow in Germanics, 1911-13; instructor, Columbia, 1913-

FREDERICK REGINALD BEYGRAU . Stenography and typewriting South Penge Park College, London, 1881; Commercial Academy, Chemnitz, 1889; official court stenographer, Canadian Government, 1907; instructor of short- hand and typewriting, West Side Y. M. C. A., and Christian Association of Colum- bia, 1908-11; instructor in commercial education, Columbia, 1910; principal, Mil- burn High School (N. J.), 1910-11; head commercial department, White Plains High School (N. Y.), 1911-12; instructor, High School of Commerce, 1912-; in- structor, Summer Session, Columbia, 1909-
DINO BIGONGIARI
A.B., Columbia, 1907; M.D., 1911; Ph.D., 1912; lecturer and associate in educational psychology; visiting neurologist, New York City Children's Hospitals and Schools; clinical assistant, New York Neurological Institute; alienist "Clearing House" for mental defectives, New York Post-Graduate Medical School and Hospital; instructor, Summer Session, Columbia, 1915.
ARTHUR HORACE BLANCHARD . Highway engineering C.E., Brown, 1899; A.M., Columbia, 1902; instructor, assistant professor, associate professor in civil engineering, Brown, 1899-1911; professor of highway engineering, Columbia, 1911-; deputy engineer, State Board of Public Roads of Rhode Island, 1903-1910; consulting highway engineer, 1910-
ORLANDO CURTIN BOWES  B.S. (agriculture), Pennsylvania State College, 1909; A.M., Columbia, 1914; superintendent dairy farms of James Marsteller, South Bethlehem, Pa., agriculturist Rossiter Realty Co., Delaware Water Gap, Pa.; head of animal husbandry department, School of Agriculture, Alfred University, 1912-; instructor, Summer Session, Columbia, 1915.
DAVID E. BOYCE
WILHELM ALFRED BRAUN  A.B., Toronto, 1895; Ph.D., Columbia, 1903; professor of French and German.  Alma College, Ontario, 1897-98; assistant, tutor, instructor, assistant professor  and associate professor, Columbia, 1900-; director, Deutsches Haus, 1914-
DOROTHY BREWSTER
ROBERT HUSE BROWN
EDWARD A. BRYANT

B.S., Cornell, 1914 (New York State College of Agriculture); instructor, Extension Teaching, Columbia, 1914-
CHARLEE HOWARD BURNSIDE Structural mechanics B.S. (architecture), Columbia, 1898; A.M., 1899; instructor in mechanics, Wisconsin 1900–03; assistant professor, 1903–09; associate in physics, Columbia, 1909–10; assistant professor of mechanics, 1910–
ARTHUR M. BUSWELL
THOMAS WILLIAM BYRNES
ROBERT PEYTON CALVERT
DONALD L. CLARK
RANDOLPH FOSTER CLARK  A.B., Williams, 1900; Pd.B., State Normal, 1902; principal Valley Falls High School, N. Y., and Shelter Island High School; teacher of mathematics, Collegiate School, New York City; teacher of mathematics, DeWitt Clinton High School, 1910—
PAUL H. CLEMENTS
WILLIAM FORBES COOLEY
JOHN JACOB COSS
ANDREW JAY CROSS  D.O.S., New York Institute of Optometry, 1907; member of the Optical Society of the City of New York; president, Optical Society of the State of New York, 1897–1900; president, American Association of Opticians, 1900–01; honorary life member of scientific section of the American Optical Association, 1909. Author of A System of Ocular Skiametry and of Dynamic Skiametry.
RICHARD DUDLEY CURRIER  A.B., Yale, 1900; LL.B., New York Law School, 1902; president board of trustees and professor of law, New Jersey Law School, 1908-
Walter E. Curt

MILTON JUDSON DAVIES. Assistant to Director, Institute of Arts and Sciences  A.B., Chicago, 1903; Chautauqua Institution, 1900-03; supervisor of lectures and concerts, Brooklyn Institute of Arts and Sciences, 1904-05; educational director, Central Branch, Brooklyn Young Men's Christian Association, 1906-13.
BERNARD OGILVIE DODGE Botany Ph.B., Wisconsin, 1909; Ph.D., Columbia, 1912; assistant and instructor, 1909-
HENRY B. DROWNE
DANIEL B. DUNCAN
JAMES C. EGBERT, Ph.D Director  Professor of Latin, Columbia. Director of the Summer Session and Extension Teaching.
EDWARD S. ELLIOTT
JOHN BATES EYSTER
HERMON WALDO FARWELL
JAMES KIP FINCH
HARRY LINN FISHER  A.B., Williams, 1909; A.M., Columbia, 1910; Ph.D., 1912; assistant, 1910-11; instructor, Cornell University Medical College, 1911-12; instructor, Columbia, 1912-
JEFFERSON B. FLETCHER English A.B., Harvard, 1887; A.M., 1889; professor, Columbia, 1904-
EDWARD JOSEPH FORTIER French A.B., Tulane, 1904; professor, Notre Dame of Maryland, 1905; instructor, Yale, 1906; associate, Illinois, 1907–10; instructor, Columbia, 1910–
DIXON RYAN FOX

J. Montgomery Gambrill, Assistant to Director Baltimore Polytechnic Institute, 1897; A.M., Columbia, Master's Diploma in Teaching, Teachers College, 1913; supervising principal public schools, Ellicott City, Md., 1899–1901; assistant state superintendent of public instruction, Maryland, 1904–06; head of department of history and civics, Baltimore Polytechnic Institute, 1906–13; editor, Allantic Educational Journal, 1906–11, secondary department, History Teacher's Magazine, 1912–; lecturer and associate, Teachers College, Columbia, 1913–
CHARLES ROBERT GASTON Ph.B., Cornell, 1896; Ph.D., 1904; assistant, 1896-1900; head of the English department, Richmond High School, New York, 1900-
JOHN LAWRENCE GERIG
RALPH W. GIFFORD  A.B., Harvard, 1892; Ll.B., 1901; A.M. (honorary), Yale, 1912; Ll.D., Fordham, 1912; admitted to New York Bar, 1902; in active practice, 1902-08; professor and Pro Dean of School of Law, Fordham, 1907-12; professor, Yale, 1912-14; lecturer, Columbia, 1909-10; associate, 1913-14; professor, 1914-
RICHARD J. H. GOTTHEIL  A.B., Columbia, 1881; Ph.D., Leipzig, 1886; lecturer, Syriac language and literature, Columbia, 1886-87; professor of Rabbinical literature, 1887-92; professor of Rabbinical literature and the Semitic languages, 1892-
JESSE M. GRAY  A.B., Olivet, 1904; A.M., Columbia, 1913; assistant, Olivet, 1902-04; head of German department, Blair Academy, 1904-12; instructor, Extension Teaching Columbia, 1914-; Summer Session, 1915.
JOHN ROBERT GREGG
ROSCOE GUERNSEY
PAUL C. HAESELER B.S., Chicago, 1911; assistant, Columbia, 1911-; instructor, Adelphi, 1913-14.  ROBERT MURRAY HAIG Economic.
A.B., Ohio Wesleyan, 1908; A.M., Illinois, 1909; Ph.D., Columbia, 1914; in structor in economics, Columbia, 1912-
Walter Henry Hall Student, Royal Academy of Music, London, 1878-82; organist and choirmaster St. Luke's Church, Germantown, Philadelphia, 1885-90; St. Peter's, Albany 1890-92; Heavenly Rest, New York, 1893-97; St. James's Church, New York 1897-1913; conductor of Brooklyn Oratorio Society, 1893-; conductor of University Chorus, Columbia, 1911-; professor of choral and church music, 1913-; conductor Mozart Society, New York, 1914-
WILLIAM HALLER
A.B., Amherst, 1908; A.M., Columbia, 1911; instructor, Amherst, 1908-09

ERNEST M. HALLIDAY
1906-07; associate, 1907-13; instructor, Extension Teaching, 1912-; instructor, Summer Session, 1915-
ALFRED D. F. HAMLIN
TALBOT FAULKNER HAMLIN Architecture A.B., Amherst, 1910; B.Arch., Columbia, 1914; instructor, New York School of Fine and Applied Art, 1913-14.
CLAYTON HAMILTON
WILLIAM E. HARNED Stenography and typewriting
A.B., Corneil, 1907; assistant principal, Cando High School, N. D., 1907-08; commercial and legal st enographer and secretary, 1908-12; instructor of shorthand and typewriting (evening classes), West Side and East Side Young Men's Christian Association, New York, 1910-14; principal Young Men's Christian Association Day School, 1912-13; instructor, Summer Session, Columbia, 1911-; instructor, Extension Teaching, Columbia, 1913-
ROBERT A. HARPER  A.B., Oberlin, 1886; A.M., 1891; Ph.D., Bonn, 1896; professor of Greek and Latin, Gates College, 1886-88; instructor in academy, 1889-91; professor of botany and geology, Lake Forest, 1891-98; professor of botany, Wisconsin, 1898-1911; Torrey professor of botany, Columbia, 1911-
CHARLES ALONZO HARRIMAN Architecture  Massachusetts Institute of Technology, 1880-91; instructor, associate and assistant professor, Columbia, 1891-
THOMAS H. HARRINGTON Mechanical drafting C.E., Columbia, 1889; assistant, tutor, instructor and assistant professor, 1894-
LAURA HATCH
EDWARD FRANKLIN HAUCH  A.B., Toronto, 1907; A.M., Columbia, 1909; instructor, Horace Mann School, 1907-11; instructor, Rutgers College, 1911-14; assistant professor, 1914-; instructor, Summer Session, Columbia, 1913; instructor, Extension Teaching, 1912-14.
PHILIP MESERVE HAYDEN
CARLTON HAYES
A.B., Columbia, 1904; A.M., 1905; Ph.D., 1909; lecturer, assistant professor associate professor, 1907-; instructor, Summer Session, Chicago, 1911.

HORACE G. HEALEY
FREDERICK WILLIAM HEHRE Electrical engineering E.E., Columbia, 1908; tutor and instructor, 1909-
ALICE MINNIE HERTS-HENIGER
WILLIAM ADDISON HERVEY  A.B., Columbia, 1893; A.M., 1894; tutor, instructor, adjunct professor, associate professor, professor, 1896-; registrar, 1908-13.
FREDERICK WILLIAM JUSTUS HEUSER
PREDERICK C. HICKS  Ph.B., Colgate, 1898; LL.B., Georgetown, 1901; A.M., Brown, 1907; Library of Congress, 1898-1904; librarian, United States Naval War College, 1905-08; assistant librarian, Brooklyn Public Library, 1908-09; superintendent of reading room assistant librarian, law librarian, Columbia, 1910-
ROSCOE R. HILL
HARRY LEVI HOLLINGWORTH
BRIAN HOOKER
PREVOST HUBBARD
GUY RICHARD HUBBART
GROVER G. HUEBNER

SOLOMON S. HUEBNER
C. CARL HUGHES
HARVEY HATCHER HUGHES English A.B., A.M., North Carolina, 1907-09; instructor, 1908-09; instructor in Extension Teaching, 1913-
EDWARD FRANK HUMPHREY
LOUIS IMBERT
HELEN REX KELLER  B.L., Smith, 1899; A.M., Columbia, 1913; New York State Library School, 1899-1901; Boston Public Library, 1901-02; Iowa State Library, 1902-04; Utica Public Library, 1904-05; Colgate University Library, 1905-06; Drexel Institute, assistant librarian and instructor in the Library School, 1906-09; classifier and reviser, Columbia, 1909-13; librarian, School of Journalism, 1913-; instructor, Summer Session, 1915-
BENJAMIN BURKS KENDRICK
EDWARD T. KENNEDY
ROY B. KESTER
S. BERNARD KOOPMAN
WILLIAM JACOB KRAFT  B. Mus., Yale, 1902; fellow of the American Guild of Organists; Mosenthal Fellow, Columbia, 1906; organist, Summer Session, 1907–13; assistant, Teachers College, 1912–15; associate in music, Teachers College, 1915–
GEORGE KRIEHN
EUGENE H. LESLIE

Louis Levine
B.S., Classical College of Cherkassi, Russia, 1903; A.M., University of Kiev, 1905; Ph.D., Columbia, 1911; instructor, Extension Teaching, 1914-
A. ARTHUR LIVINGSTON
A.B., Amherst, 1904; Ph.D., Columbia, 1910; instructor, Smith, 1908-09; tutor, Columbia, 1909-10; assistant professor, Cornell, 1910-11; assistant professor, Columbia, 1911-
HENRY LOGAN Stenography and typewriting
A.B., Dickinson, 1910; A.M., 1912; instructor, High School, York, Pa., 1910-11; principal, High School, Boalsburg, Pa., 1911-12; commercial instructor, South Side High School, Rockville Center, N. Y., 1912-13; commercial instructor, High School, Madison, N. J., 1913-14; instructor, Extension Teaching, Columbia, 1914-
Louis Auguste Loiseaux French
Certificat d'études primaires supérieures, Académie de Dijon, 1887; brevet d'instituteur, 1887; B. ès S., University of Dijon, 1894; tutor, instructor, adjunct professor, assistant professor and associate professor, Columbia, 1892-
FREDERICK LOWNHAUPT Investments
New York University (Finance and Commerce), 1901-05; secretary to vice-president, Electric Properties Company; bond market editor of Wall Street Journal. Author of Investment Bonds, What an Investor Ought to Know, and editor of the bond department of The Magazine of Wall Street.
HOWARD L. McBain
A.B., Richmond College (Va.), 1900; A.M., 1901; A.M., Columbia, 1905; Ph.D., 1907; associate professor, 1913-; visiting lecturer on municipal administration, 1914.
WILLIAM H. McCastline University physician
M.D., Columbia, 1903; assistant professor of physical education, Teachers College, 1910; University Medical Officer, 1912-
MATTHEW THOMPSON McClure
A.M., Virginia, 1907; Ph.D., Columbia, 1912; instructor, 1914-
CHARLES T. McFarlane
JAMES HOWARD McGregor Zoölogy
B.S., Ohio State, 1894; A.M., Columbia, 1896; Ph.D., 1899; assistant, tutor, instructor, assistant professor and associate professor, 1897-
FRANK J. McMackin  School of Pedagogy, Philadelphia, 1909; Philadelphia public schools, 1909-11;  B.S., Columbia, 1912; A.M., 1913; assistant, 1913-
ARTHUR W. MACMAHON A.B., Columbia, 1912 A.M., 1913; instructor, 1913-
EDWARD B. MANNING
Pupil of Humperdinck, MacDowell, Rubner and Vidal; Schradieck (violn); instructor, Oberlin, 1905-06; Mosenthal Fellow, Columbia, 1910-11; conductor, Columbia Philharmonic Orchestra, 1914-
HAROLD ELMER MANTZ French
A.B., Michigan, 1910; assistant, Illinois, 1910-11; instructor, Washington, 1911-12.

ELIAS MARGOLIS Semitic languages A.B., Cincinnati, 1900.
CHRISTABEL COE MERRETT
GEORGE L. MEYLAN
WILLIAM PEPPERELL MONTAGUE
ROBERT H. MONTGOMERY
PARKER THOMAS MOON
O. S. MORGAN  Agriculture  A.B., Illinois, 1905; M.S.A., Cornell, 1907; fellow in agriculture, 1907-08; Ph.D.,  1909; director, New York State School of Agriculture, Alfred, N. Y., 1908-11;  professor, Columbia, 1911-
DAVID H. MOSKOWITZ Mathematics A.B., Columbia, 1913; A.M., 1914.
HENRI FRANÇOIS MULLER  B. ès L., University of Paris, 1897; Ph.D., Columbia, 1912; tutor, instructor, and assistant professor, Columbia, 1903-
HENRY FRASER MUNRO
DAVID SAVILLE MUZZEY
ARTHUR C. NEISH
J. LEE NICHOLSON

Frederick S. Nowlan	
A.B., Acadia, 1908; A.M., Harvard, 1909; adjunct professor, Georgia Schot Technology, 1909-10; instructor, Horace Mann High School, 1910-11; assis Columbia, 1911-12.	tant
TIDING ODDING ODDING	ench
B.S., Columbia, 1909; assistant, Lehigh, 1912-13; instructor in Extension Ting, Columbia, 1913-	each-
CHARLES PACKARD . Zoo B.S., Syracuse, 1907; M.S., 1908; Ph.D., Columbia, 1914; instructor in bio Williams, 1908-10; assistant and instructor in zoology, Columbia, 1910-	ilogy logy
Frank Allen Patterson, Assistant to Director, Morningside En. A.B., Syracuse, 1904; A.M., Columbia, 1907; Ph.D., 1911; assistant, Syra 1903-04; instructor in summer school, Syracuse, 1904; instructor, Blees Mil Academy, Macon, Missouri, 1904-06; associate, Illinois, 1911-12; instructor assistant professor, Columbia, 1912-	litary
SAMUEL WHITE PATTERSON	909-
CHARLES CHESTER PEARCE	Vash each
A.B., Wisconsin, 1909; LL.B., Columbia, 1915; instructor in English and ding, Illinois, 1909–11; instructor in rhetoric and oratory and coach of debate, Vington, 1911–12; coach of debate, Columbia, 1912–14; instructor, Extension Ting, 1914–; J. P. Morgan Scholar in Law, Columbia, 1912–15; Chautauqua lec	ebat Vash each ture:
A.B., Wisconsin, 1909; LL.B., Columbia, 1915; instructor in English and ding, Illinois, 1909–11; instructor in rhetoric and oratory and coach of debate, Vington, 1911–12; coach of debate, Columbia, 1912–14; instructor, Extension Ting, 1914–; J. P. Morgan Scholar in Law, Columbia, 1912–15; Chautauqua lee with the Redpath Lyceum Bureau, summer of 1915.  HAROLD PERRINE  A.B., Columbia, 1908; A.M., 1909; C.E., 1910; instructor, Summer Scholar Surveying, Camp Columbia, 1910–12; in charge of Columbia fire testing states.	ebat Vash each tures ering pol on ation
A.B., Wisconsin, 1909; LL.B., Columbia, 1915; instructor in English and ding, Illinois, 1909–11; instructor in rhetoric and oratory and coach of debate, Vington, 1911–12; coach of debate, Columbia, 1912–14; instructor, Extension Ting, 1914–; J. P. Morgan Scholar in Law, Columbia, 1912–15; Chautauqua lec with the Redpath Lyceum Bureau, summer of 1915.  HAROLD PERRINE  A.B., Columbia, 1908; A.M., 1909; C.E., 1910; instructor, Summer Scholar Surveying, Camp Columbia, 1910–12; in charge of Columbia fire testing states 1912; in charge of research in Department of Civil Engineering, 1913.  ALBERT T. POFFENBERGER, JR.  A.B., Bucknell, 1909; A.M., Columbia, 1910; Ph.D., 1912; assistant, lect	ebat Vash each tures ool o ation blogy
A.B., Wisconsin, 1909; LL.B., Columbia, 1915; instructor in English and ding, Illinois, 1909–11; instructor in rhetoric and oratory and coach of debate, Vington, 1911–12; coach of debate, Columbia, 1912–14; instructor, Extension Ting, 1914–; J. P. Morgan Scholar in Law, Columbia, 1912–15; Chautauqua lec with the Redpath Lyceum Bureau, summer of 1915.  HAROLD PERRINE	ebat Vash each ture: ool o ation blogy urer
A.B., Wisconsin, 1909; LL.B., Columbia, 1915; instructor in English and ding, Illinois, 1909–11; instructor in rhetoric and oratory and coach of debate, Vington, 1911–12; coach of debate, Columbia, 1912–14; instructor, Extension Ting, 1914–; J. P. Morgan Scholar in Law, Columbia, 1912–15; Chautauqua lec with the Redpath Lyceum Bureau, summer of 1915.  HAROLD PERRINE	ebat Vash each ture: ool o ation blogy turer

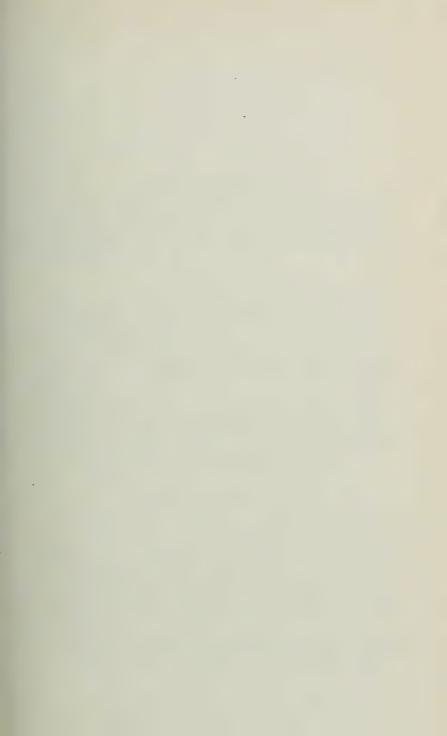
1902-

B.S., Oklahoma, 1905; M.S., Yale, 1907; Ph.D., 1910; instructor in mineralogy and petrology, Oklahoma, 1908; lecturer in geology, Bryn Mawr, 1908-10; associate, 1910-12; assistant curator of geology and invertebrate paleontology, American Museum of Natural History, 1912-; instructor, Extension Teaching, Columbia, 1914-
GERARD ALSTON REICHLING
KATHARINE C. REILEY, Assistant to Director Latin and Greek A.B., Vassar, 1895; A.M., Columbia, 1902; Ph.D., 1909; adviser for women, Furnald Hall, Summer Session, 1915.
LELAND REX ROBINSON
Frank Alexander Ross Sociology Ph.B., Yale, 1998; A.M., Columbia, 1913; Richard Watson Gilder Fellew, 1913-15
EDWARD McChesney Sait
ROGER B. SAYLOR
FRANK CHARLES SCHROEDER
PAUL SCHULZ
HENRY H. L. SCHULZE
ROBERT LIVINGSTON SCHUYLER
HERBERT N. SHENTON
WILLIAM R. SHEPHERD
ROBERT E. SHERLOCK

Frank Dempster Sherman Architecture
Ph.B., Columbia, 1884; instructor, adjunct professor, professor, 1889-
JAMES THOMSON SHOTWELL
A.B., Toronto, 1898; Ph.D., Columbia, 1903; assistant, lecturer, instructor, adjunct professor and professor, 1900-
Francis P. Smith
Ph.B., Columbia, 1888; non-resident lecturer in highway engineering, 1911- chemical and consulting paving engineer, 1895-
JAMES POWELL COCKE SOUTHALL
HARRISON ROSS STEEVES English
A.B., Columbia, 1903; A.M., 1904; Ph.D., 1913; assistant, tutor, instructor an assistant professor, 1905-; assistant director of University Admissions, 1915-
WILLIAM H. S. STEVENS
A.B., Colby, 1906; A.M., George Washington, 1909; Ph.D., Pennsylvania, 1912 instructor, Summer Session, Columbia, 1915—
Ellery C. Stowell International lan
A.B., Harvard, 1898; licencié en droit, Paris, 1906; docteur en droit, Paris, 1909 lecturer and assistant professor, Columbia, 1913-
HARVEY JULIAN SWANN Frence A.B., Brown, 1905; A.M., Harvard, 1906.
JOSEPH JOHN TANZOLA
ALGERNON TASSIN
A.B., Harvard, 1892; A.M., 1893; lecturer and assistant professor, Columbia 1905-
RUPERT TAYLOR
CALVIN THOMAS
ACHIEV H. TWODYPARD
A.B., Wesleyan, 1893; L.H.D., 1909; A.M., Harvard, 1896; Ph.D., 1898; professor, Columbia, 1906-
WILLIAM P. TRENT English
M.A., Virginia, 1884; LL.D., Wake Forest, 1899; D.C.L., University of th South, 1905; professor, Columbia, 1900-
SAMUEL MARION TUCKER
A.B., Wofford, 1896; A.M., Columbia, 1901; Ph.D., 1908; head department of English, Florida State, 1903-09; dean, 1909-10; head, department of English, Poly technic Institute of Brooklyn, 1910-

CARL VAN DOREN English A.B., Illinois, 1907; Ph.D., Columbia, 1911; assistant, Illinois, 1907-08; in-
structor and assistant professor, Columbia, 1911-
GEORGE HENRY VAN TUYL
ISAAC STANLEY WALKER Sanitary engineering Drexel Institute, 1900; Temple University, Philadelphia, 1901. With firm of Hering and Gregory, sanitary experts.
NEWMAN D. WAFFLE
James F. Walker Agriculture Student practical arts, Teachers College, 1911–13; instructor, 1914–; farmer and poultryman, Rafford's Farms, Skillman, N. Y., 1914–; instructor, Extension Teaching, Columbia, 1912–14.
S. EUGENIA WALLACE Library economy St. Mary's Hall; Columbia University Library; supervisor, filing system, Rock Island-Frisco Lines, 1907-09; Rock Island Lines, 1910-12; supervisor filing system, Bond Department, Guaranty Trust Company, 1913-
HAROLD V. WALSH
Frank Edwin Ward  Pupil of Edw. MacDowell (theory), Ayg Spanuth (piano), C. Rubner (orchestration), W. C. Macfarlane (organ); Mosenthal Fellow, Columbia, 1902-03; organist, 1902-13; organist, Church of the Holy Trinity, 1906-; organist, Temple Israel, 1902-; associate in music, Columbia, 1909-; associate, American Guild of Organists.
ARTHUR WARE  B.S., Columbia, 1898; Ecole des Beaux Arts, 1901-04; Columbia Travelling Fellowship, 1902; associate, Columbia, 1912-
G. P. C. WATKINS
GERALD WEEMAN
MORRIS FRANCIS WEINRICH
LOUIS R. WELZMILLER
OSCAR HELMUTH WERNER

HERBERT L. WHITTEMORE Mechanic
B.S., Wisconsin, 1903; Mech. E., 1910; instructor, Columbia, 1912-
BLANCHE COLTON WILLIAMS
LEWIS EDGAR WINFREY
SAMUEL LEE WOLFF
FREDERIC A. WOLL
HENRY GUY WOODWARD
ROBERT SESSIONS WOODWORTH
I. MAURICE WORMSER
EVA F. HOWIE WRIGHT
THEODORA ETHEL WYE  Diploma, Michigan State Normal College, 1900; B.S., Columbia, 1907; assistan in Latin and Greek, Columbia, 1909-12; instructor Extension Teaching and Summe Session, 1910-
Donnell Brooks Young Zoölog





### INTRODUCTORY

The statutes of the University (Section 230) define Extension Teaching as "instruction given by University officers and under the administrative supervision and control of the University, either away from the University buildings, or at the University, for the benefit of students unable to attend the regular courses of instruction."

#### Students

Courses in Extension Teaching are planned for two classes of students,—first, men and women who can give only a portion of their time to study and who desire to pursue subjects included in a liberal education of the character and grade of a college or professional school, but without any reference to an academic degree,—second, those who look forward to qualifying themselves to obtain in the future academic recognition, involving acceptance of the work which they may satisfactorily complete in Extension Teaching.

Students who are duly admitted to Extension courses but are not candidates for a degree or diploma are termed *non-matriculated* students. Students who have completed the requirements for admission, and have been formally admitted by or in behalf of the Faculty concerned as candidates for a degree or diploma, are termed *matriculated* students.

#### Courses of Instruction

Under the direction of the University Council courses are offered in Extension Teaching which count toward the degree of A.M.

Regular courses of instruction are offered in Extension Teaching which in many instances are coördinated so as to form at least the first years of collegiate and professional work, thus providing in the evening at Morningside Heights, and elsewhere, courses in subjects which are generally offered in the Freshman, Sophomore and Junior years of college, so that students may qualify themselves for admission with advanced standing to Columbia and Barnard Colleges or other institutions as candidates for the degrees of A.B. and B.S.

There are also offered at Morningside Heights in the evening, subjects which are required of students of the Schools of Mines, Engineering and

Chemistry, so that a student may pursue some special line of scientific study or prepare himself for advanced study in these schools. Courses in these schools are open only to those who have had a preliminary course of three years in Columbia College or the equivalent. This preliminary collegiate training may be taken in part or in full in Extension Teaching in the evening by students engaged in business during the day. See pages 8, 9, 10.

Evening courses are offered in Architecture at Morningside Heights which correspond to courses of the Columbia University School of Architecture. See pages 6, 7, and 23–28.

Day and evening courses in Commerce, Accounts and Finance, forming a three-year course leading to a certificate in commerce and preparing for the state examination for the certificate of Certified Public Accountant, are given at Morningside Heights. A special circular describing these courses in detail will be mailed upon request. See also page 32 following.

A series of courses intended to equip students for the position of secretary is also offered. The completion of these courses will require three years for high school graduates, and at least one year for college graduates. These courses are carefully described in a special circular which will be mailed on application. See also pages 13, 14.

Many courses are offered which aid a student to prepare for the Schools of Law, Medicine and Journalism or to complete his preparation for Columbia College. See pages 7, 8, 9, 12, 13.

A two-year course in Practical Optics is offered in cooperation with the Department of Physics for the special training of those who expect to become optometrists. A special circular will be mailed upon request. See also page 13.

Courses are offered in Agriculture for those who desire special work in that subject.

A large number of other courses in varied subjects is given late in the afternoon and on Saturday which repeat those in liberal studies offered in the Colleges of the University. These are given in the same manner and often by the same instructors as the regular courses. In most instances university credit is granted.

Numerous courses are given at various centres. These are either regular courses of collegiate grade or short lecture courses without academic credit.

Lecture-study courses in certain subjects forming fifteen or thirty lectures alternating with quiz or conference hours are given at Morningside Heights and at centres when requested.

Centres for the study of choral music are maintained at Morningside Heights and Brooklyn, and large choral concerts are given during the year.

The Department of Extension Teaching maintains also the Institute of Arts and Sciences, described on page 14.

## Registration

Students who expect to attend at Morningside Heights are required to register at the Office of the Registrar 201 East Hall, 116 Street and Amsterdam Avenue. A student in Extension Teaching will register for one half-year and is required to renew his registration in person at the beginning of the second half-year. Fees must be paid at the time of registration. Students will be allowed to attend one lecture before registration and payment of fees. Registration for the first half-year begins September 22; for the second half-year February 3. The Registrar's Office, in addition to the regular daily hours (9 a.m to 5 p.m.), will be open (except on Saturday), from September 27 to October 8, 1915, and from February 3 to February 18, 1916, from 7 to 9.30 p.m., and thereafter from 7 to 9 p.m. The Saturday hours are from 9 a.m. to 12 m. Payment of fees should be made at the Office of the Bursar in the same building. Students intending to take courses in any centre will register at that centre in accordance with instructions given in the statements introductory to these courses.

Candidates for admission as matriculated students will be permitted to register provisionally subject to the presentation of satisfactory credentials. Record of attendance will date for matriculated students from September 30, for the first term, and from February 9, 1916, for those entering in the second term.

A matriculated student is expected to conform to the rules for registration of the college of which he is a member. Students who expect later to apply for credit must secure approval of their schedules before registration.

Matriculated students in the various schools of the University will be allowed to attend courses in Extension Teaching in accordance with the regulations of the several schools; they must, however, register and pay the fees in the same way as other students in Extension courses.

Students should avoid assuming too heavy a program. Those working for credit will not be allowed to register for more than eight points in each half-year without securing the consent of the Director.

In conformity with the custom in the University, stu 'ents not otherwise enrolled when applying for registration in Extension Teaching, may be called upon to file with the Registrar a letter signed by some responsible person, testifying to the character of the student thus applying.

#### Fees

University fee, for students in Extension Teaching exclusively, for each year or any part thereof, \$5.

Tuition fee, the fee per half-year as announced after the description of the course.

Unless otherwise directed, students will pay all fees at the Office of the Bursar. This office is open daily from 9.30 a.m. to 3.30 p.m.; Saturday morning from 9 a.m. to 12 m. The office will also be open every evening

from 7 to 9 p.m. (except Saturday) from September 22 to October 15, 1915, and from October 18 to November 5, on Monday and Friday evenings only. It will also be open every evening from 7 to 9 p.m. from February 3 to February 18, 1916; and from February 21 to March 3, on Monday and Friday evenings only.

Fees must be paid before entering upon the course. Money in the form of a check or post office money order may be mailed to the Bursar after the registration is completed.

Cards of admission indicating that the student has properly registered and paid his fees will not be sent to the instructor until such payment is made. The fees and points as stated with the various courses are for the half-year.

After the second Saturday following the opening of either half-year, no reduction or return of fees will be made to persons who discontinue any course or courses for which they have registered. Exception to this rule may be made in the case of those who, because of serious personal illness certified to by a physician of reputable standing, are obliged to withdraw entirely from all of their courses. In considering such applications the student will be regarded as having withdrawn upon the date on which the Registrar receives from him notice of his withdrawal, and any refund will be reckoned from that date. In the case of new students who enter for the first time after the second Saturday, one week from the time of first registration will be allowed for arrangement of program. Thereafter no refunds will be granted.

Students in courses in local centres will pay either the fee arranged by the local centre or the usual fees described above. They will pay fees to the treasurer of the local centre unless otherwise directed. Extension students taking courses in local centres who desire to receive credit for their work must fulfill all the requirements of matriculation described above.

#### Admission

No examination is required for admission to courses offered in Extension Teaching, but students must satisfy the instructors concerned that they can pursue the courses with advantage. It is expected that prospective students in all collegiate and professional courses shall have had a full secondary school education. The courses are open, unless it is otherwise stated, both to men and women. Admission to a course is finally determined by the Director according to the qualifications of the student, and the privilege of attendance upon a course which the student is found unfitted to pursue with advantage will be withdrawn

With students who intend to begin or resume regular attendance under any faculty of the University, the question of academic credit for Extension Teaching courses should in every case be considered and approved by the designated representative of the Committee on University Admissions. Proper blanks may be obtained in the Office of Extension Teaching.

## Privileges

Students taking six points each half-year have the privileges of the Library and, in the case of men, the University Gymnasium. The privilege of residence in the dormitories is limited with Extension Teaching students to those in good standing pursuing programs aggregating not less than ten points each half-year. Women students in Extension Teaching may reside in Whittier Hall under certain conditions in regard to the amount of work taken.

Attention is called to the restaurant service at the University Commons maintained for the use of students. Dining-rooms for men and women are located in University Hall in which meals may be obtained at moderate rates.

A rest room for women students is located on the first floor of Philosophy Hall, open in the morning and afternoon. A coat room in the basement of the Journalism Building is provided for the use of students.

#### Office

The Office of Extension Teaching is Room 306 Philosophy Hall. Full information as to this department may be obtained at this office, which is open from 9 to 5 daily, Saturday 9 to 4. The office will be open in the evening, except Saturday, from 7.30 to 9, from September 22 to October 8 and from February 9 to February 18, 1916. When the office is not open, students are referred to the Office of the Registrar, East Hall.

#### Adviser to Women Students

Attention's called to the appointment of an Adviser to Women in Extension Teaching. Women students are invited to apply freely to her for help and advice in regard to all matters concerned with their welfare at the University. Those under twenty-five years of age, not living with parents or relatives, are expected to consult with her as to their place of residence. She may be conferred with at her regular office hours, 3–4.30 p.m., Monday and Friday, Room 306 Philosophy Hall, or in any particular case by special appointment.

#### Location

Intramural collegiate and professional courses will be given at Columbia University. Extramural courses will be given in the School Administration Building, Trenton; in the William L. Dickinson High School, Jersey City, and in the Paterson High School, Paterson; Passaic High School, Passaic, N. J.; School of Industrial Arts, Mt. Vernon, N. Y.; High School Building, Norwalk, and in the Bridgeport High School, Bridgeport, Conn., and wherever classes sufficiently large are formed.

The most convenient means of access to the University are the Subway (Broadway Branch) to 116 Street, Columbia University Station; or the Sixth or Ninth Avenue Elevated to 110 Street Station, or 116 Street Station; and Broadway or Amsterdam Avenue surface lines.

#### Calendar and Hours

Columbia University opens on September 29 and Extension courses begin Thursday, September 30. The academic calendar calls for thirty weeks of actual class work. The examination period for the first half-year begins January 31. The second term will open February 9. The examination period for the second half-year begins May 22. The examinations are given in the hours usually assigned to recitations and lectures. The calendar for Extension Teaching is the academic calendar of the University, except in regard to examinations. There will be no classes in Extension Teaching on the following days: Election Day, November 2; Thanksgiving Day and the two days following (November 25, 26 and 27); December 22 to January 4, inclusive; February 22; April 20 to 24, inclusive; May 30. There will be classes on February 12. See page 99.

Extension courses are usually given in the afternoon after three o'clock, in the evening of every week day, and on Saturday morning.

## The University Press Book Store

The University Press Book Store situated in the Journalism Building supplies students and officers with text-books and other needed material at stated discounts from list prices. These discounts are fixed by the Trustees of the Columbia University Press. The store will be open during the day; and at night from 7 to 8.30 from September 29 to October 30. Thereafter it will be open on alternate Monday and Wednesday evenings beginning November 1. During the second half-year it will be open during the evening from February 9 until February 25, and thereafter on alternate Monday and Wednesday evenings beginning February 28.

#### Architecture

In order to secure a Bachelor's degree in Architecture in Columbia University it is necessary that a student should present before entering the day courses in Architecture at least two years of college work in addition to the regular high school education. These two years of collegiate study and about three years of undergraduate work in the School of Architecture may be completed at night, enabling the student, while engaged in business throughout the day, ultimately to secure a degree in this subject, when he supplements his evening work later, after entrance requirements have been satisfied, by one year of day study. The collegiate program of 72 points

should include English, College Algebra, Analytical Geometry, Calculus, Philosophy, History, Politics, and as much French and German as possible. A typical schedule of the classes given in Architecture at night follows:

#### First Year

First Half	Second Half
Architecture e1	Architecture e2
Architecture e5 or e7	Architecture e6 or e8
Architecture e71	Architecture e72

#### Second Year

Architecture e9	Architecture e10
Architecture e27	Architecture e28
Architecture e31	Architecture e32
Architecture e61*	Architecture e62*

\*Proficiency in e61 will make it possible to complete e62 in the first term, and e64 may then be undertaken without additional fee.

#### Third Year

Architecture e15	Architecture e16
Architecture e29	Architecture e30
Architecture e37	Architecture e38
Fine Arts Architec ure e41	Fine Arts Architecture e42
Architecture e63†	Architecture e64†

†Proficiency in e63-e64 will make it possible to undertake e65-e66 without additional fee.

#### Fourth Year

Architecture e11	Architecture e12
Architecture e65	Architecture e66

Architecture e75 or e76 Fine Arts Architecture e92 or e94

Fine Arts Architecture e91 or e93

The courses e27, e28, e29, e30, e37, e38 cover the same ground as corresponding courses in the School of Architecture, but are not equivalent in hours of attendance.

This schedule does not include water color drawing, life drawing, principles of planning and composition, structural design, stereotomy, research, thesis, and mechanics. These courses may usually be covered in one year's residence in the School of Architecture.

# College Course

It is possible for a student to prepare himself for admission to the senior class of Columbia College by studying in Extension Teaching at night. The last year must be taken in residence during the day. Since the possible number of combinations of subjects leading to the degree of A.B.

or B.S. is large, it is not feasible here to attempt to outline a fixed collegiate course. The student should consult the Announcement of Columbia College in regard to required subjects and electives. The following schedule, based upon the usual entrance offering, is given merely as a suggestion of the general sequences of studies recommended for those working for a degree. Assistance in arranging programs may be secured in the office of the Director, 306 Philosophy Hall.

The length of time allotted below may be considerably shortened by electing evening courses in the Summer Session. Occasionally students who are working only a portion of the day may assume a heavier program than is given below, but those who are employed throughout the day are cautioned against electing too many subjects.

First Year	Th:-1 V
First Year	Third Year
College Points	College Points
English eA1-A26	Philosophy 4
Modern Language 6	History eA1-A2 6
Mathematics 4	English e17–18 4
	Modern Language 2
16	_
	16
Second Year	Fourth Year
English eB1-B2 4	English e21–22 4
Philosophy eA1–A2 6	Zoōlogy e1–2 4
Modern Language 6	Economics e1-2 6
_	Politics e1-2 6
16	_
	20
Fifth	Year
	College Points
Modern Language.	6
Mathematics	
Science	8
	_
	20

#### College Entrance Course

Total ....

Mature students who are unable to attend a secondary school and other persons who are engaged in business throughout the day may prepare themselves for college by pursuing courses in Extension Teaching. These courses are not intended for persons under eighteen. The following schedule is suggested for those who desire a complete training in subjects

required for college entrance. Students may elect the complete course or only such classes as they may need.

In order to count any course in Extension Teaching toward admission, candidates must, before beginning the course, secure written permission from Professor A. L. Jones, Director of Admissions; except candidates for admission to Barnard College, who must secure written permission from the Dean of Barnard College.\*

First Year	Second Year	
English eW1-W2	English eX1-X2	
German eA1-A2	German eB1–B2	
or	or	
French eA1-A2	French eB1-B2	
or	or	
Greek e1–2	Greek e3	
or	or	
Latin eX1-X2	X2 Latin eY1-Y2	
Mathematics eX1	eX1 Mathematics eA1	
(Algebra)	Physics eA1-A2	
Mathematics eY2	Chemistry eA1	
(Plane Geometry)	Mathematics eA2	
	Elective subjects	

Third Year
English eY1-Y2
History eX1-X2
or
Freehand Drawing
or
Latin eY3-Y4
Physical Geography
Elective subjects

A complete list of courses given in Extension Teaching which may be offered for entrance credit follows:

Botany e1-2, for botany.

Chemistry eA1 or eA2, for chemistry.

Drawing eW1 or eW2, for drawing.

English eW1-W2, for English grammar.

English eX1-X2, for English a.

English eY1-Y2, for English b.

<sup>\*</sup>While work done in university extension courses is not primarily accepted in lieu of entrance examinations to Barnard College, entrance conditions may be removed by a grade of at least C, subsequently obtained in the appropriate extension courses. In exceptional cases, for reasons of weight, the Dean may grant permission to a student to count an extension course for entrance credit, without her having taken an entrance examination in the subject.

French eA1-A2, for elementary French. French eB1, for intermediate French. Geography e25-26, for physical geography. German eA1-A2, for elementary German. German eB1-B2, for intermediate German. Greek e1-2, for Greek a, b and g. Greek e3, for Greek c. History eX1 or eX4, for History d. History eX2 or eX3, for History a, Latin eX1-X2, for second-year Latin, Latin 3. Latin eY1 or eY8, for Vergil, Latin 5. Latin eY3, for Cicero, Latin 4. Latin eY5 or eY6, for advanced Latin prose composition, Latin 6. Mathematics eX1 or eX2, for elementary algebra. Mathematics eY1 or eY2, for plane geometry. Mathematics eA1, eA3, e1 (any two), for advanced mathematics. Physics eA1-A2, for elementary physics. Spanish e1-2, for elementary Spanish. Zoölogy e1-2, for zoölogy.

## Commerce

Columbia University through its Extension Teaching Department offers day and evening courses in Commerce, Accounts and Finance.

The object of these courses is to give a thorough training for those who desire to enter upon a business career immediately after leaving high school, and also to provide for the college student instruction in the principles of business and a more exact knowledge of commerce and finance. The intention is also to prepare students for the examinations for the certificate of Certified Public Accountant as well as to give a special training for business.

At the close of each half-year students will receive from the Registrar a report of standing, and those who have completed the course in a manner satisfactory to the Administrative Board will receive at the close of three years a certificate signed by the Director of Extension Teaching. In order to be eligible for a certificate covering the entire course a student must secure 48 points. These courses are described in detail in a special circular which will be mailed upon request.

## **Engineering Courses**

In taking classes in engineering and allied subjects in Extension Teaching a student may adopt one of two methods in arranging his studies. (1) He may select only the class or classes in which he is especially interested, and which will be of most immediate assistance to him in his present work. In every case he must be careful that he possesses all the prerequisites for each course which he proposes to pursue. Extension Teaching

offers many classes of this nature, planned especially for mature students already engaged in engineering work and at liberty to devote only a few evenings a week to professional study. Such courses do not in themselves lead to any degree, though some of them bear credit applicable to degrees, when other conditions have been fulfilled, as stated below. (2) He may plan his work in such a way that when supplemented by day attendance, after having completed satisfactorily the entrance requirements, it will lead ultimately to a degree in engineering. No degree is given for work taken exclusively in the evening.

A student desiring to matriculate in the Schools of Mines, Engineering and Chemistry is required to present, in addition to the regular four years of the preparatory school, at least three years of collegiate work.

Extension Teaching has provided a schedule whereby a student by studying in the evening can complete this collegiate preparation. He will then be allowed to enter the Schools of Mines, Engineering and Chemistry, provided always that he has satisfied the requirements in regard to the work of the preparatory school. The collegiate course, outlined below, is that recommended by the Faculty of Applied Science in Columbia University

In order to avoid conflicts the subjects should generally be taken in the order suggested, though in many cases the program will necessarily be rearranged to suit the needs of the individual student. All persons thinking of pursuing this course are urged to confer with the officers of Extension Teaching in Room 306 Philosophy Building. A few subjects in the fourth and fifth years are not given at present in Extension Teaching, but they will be added as the need arises.

	FIRST	YEAR	
First Half		Second Half	
	Points	P	oints
English eA1	3	English eA2	3
Mathematics e1		Mathematics e4	
Physical Education eA1	2	Physical Education eA2	2
History eA1		History eA2	
_			_
	10		10
	SECOND	YEAR	
Mathematics e75	4	Mathematics e76	4
Philosophy eA1	3	Chemistry e6	5
English e21		English eB2	
English eB1		Economics e2	
Economics e1			
	_		
	1.4		1.4

#### THIRD YEAR

Chemistry e7	Chemistry e14 5
French e3 3	French e4 3
or	or
	German eE2 3
German eE1 3	
Government and Industry e1 3	Government and Industry e2. 3
_	****
11	11
	-
FOURT	H YEAR
Mechanics e1	Physics e6
Mathematics e77 3	Philosophy eA2 3
Chemistry e15	Mineralogy e14 3
10	12
FIFTH	YEAR
Mechanical Drawing e1 2	Mechanical Drawing e2 2
Mechanical Drawing e3 2	Mechanical Drawing e4 2
	· ·
Physics e7	
Physics e49	Physics e50
	_
12	12
^-	Electives 8
	Total124

Students desiring to secure a baccalaureate degree in addition to the professional degree should plan to take the last year of the above course in Columbia College and should arrange to take Philosophy eA1-A2 earlier in the course.

## Scholarships

A scholarship, affording free tuition in the graduate courses of the Schools of Mines, Engineering and Chemistry will be given each year to the student who completes the above outlined evening course with the highest record.

#### Law

In order to secure the degree of Bachelor of Laws from Columbia University a student must present 94 points of collegiate study before entering the course. Students planning at some future time to study law are therefore advised to complete the collegiate work outlined on page 8, which, when supplemented by one course of six points, will answer the entrance requirements provided the student has also satisfactorily completed the  $14\frac{1}{2}$  units of high school studies required for entrance to college.

### Medicine

In order to enter the College of Physicians and Surgeons in Columbia University students must present at least two years of collegiate study, amounting to 62 points if the work is done at Columbia College or in Extension Teaching, in addition to the regular high school preparation.

Students intending later to study medicine may complete the first three years of the evening collegiate course outlined on page 8, which will answer the collegiate requirements for admission. It is recommended, however, that they substitute courses in chemistry, botany and physics for advanced classes in modern languages or other subjects.

## **Optics**

A two-year technical course in Practical Optics leading to a certificate issued by the University is given by Extension Teaching. The required classes in each year are mentioned in the outline given below. A special circular describing this series and giving full information concerning the entrance requirements may be obtained from the Secretary of the University. Two scholarships covering all tuition fees in Practical Optics are awarded annually by the American Optical Company of Southbridge, Massachusetts.

## First Year

Physics A1-A2 General elementary physics.

Optometry 1-2 Theoretical optics.

Optometry eZ1 Algebra, geometry, and plane trigonometry.

Optometry 3-4 General anatomy with special reference to the anatomy and physiology of the eye.

Optometry 6 Practical optics.

Optometry 8 Theoretical optometry.

Second Year

Optometry 9-10 Theoretical optics.

Optometry 11-12 Physiological optics.

Optometry 13-14 Practical optics.

Optometry 15-16 Theoretical optometry.

Optometry 17-18 Pathological conditions of the eye, general hygiene and hygiene of the eye.

Optometry 19-20 Practical optometry.

## Secretarial Studies

The Department of Extension Teaching has provided for men and women a series of courses given in the afternoon and evening which will lead to a certificate in secretarial studies.

The object of these courses is properly to equip students who desire to become private secretaries or to hold important positions in offices as

assistants to public officials or to persons engaged in professional pursuits. Students who undertake these courses in full must have had a high school education or its equivalent. The complete series will demand three years, although this may be reduced by attendance at Summer Sessions or by obtaining advanced standing on the presentation of evidence of having completed any course or its equivalent. A special course for college graduates, leading to a certificate, may be completed in one year. Students may make use of both the afternoon and evening courses. They are described in detail in a special circular, which will be mailed upon request.

## The Degree of Master of Arts

Courses in Extension Teaching which have previously been approved by the Executive Committee of the University Council as being equivalent to the corresponding work regularly offered under the Faculties of Political Science, Philosophy and Pure Science may be counted toward the requirements for the degree of Master of Arts. These courses are numbered 100 and above and marked Credit II.

#### The Institute of Arts and Sciences

The Institute of Arts and Sciences is a division of the Department of Extension Teaching. The aim of the Institute is to provide a popular late afternoon and evening program consisting of university extension lectures, addresses and other events of a cultural nature.

The program is planned for busy men and women. The scope includes single lectures and short series of lectures, of not over six, on history, literature, art, music, geography, science, and on current economic and social problems; it comprises also illustrated travel lectures, recitals, dramatic readings and vocal and instrumental as well as chamber music concerts.

The program is subscribed for as a whole. The annual dues are \$10 payable in advance with an enrollment fee of \$5 payable only once provided the enrollment does not lapse.

A member of the Institute is entitled to free admission for himself and one other person to all the lectures and other events on the regular evening program, but in the afternoon only one person is admitted on the ticket. The ticket is transferable. Altogether the membership ticket includes free admission to approximately 250 lectures, readings, concerts, recitals, etc., throughout the season. The program continues from October to April.

The University auditoriums are used. Memberships are accepted at any time and are good for one calendar year from the first of the month nearest the time of enrollment.

A special pamphlet describing in detail the program of the Institute will be mailed upon request.

# Regulations Governing Credit toward the Degrees of A.B. and B.S., Columbia College, Barnard College and Teachers College

Students of Columbia College, Barnard College and Teachers College will be allowed to attend Extension courses which are approved by the Committees on Instruction and will be allowed to count them toward the degrees of A.B. and B.S. under the following regulations:

- 1. The election of Extension courses must be approved in advance by the Committees on Instruction.
- 2. Students will not be allowed to exceed a total of 16 hours in Barnard College, or 16 hours in Teachers College including the hours of Extension courses, save for reasons of weight and by the special permission of the Committees on Instruction.
- 3. Students desiring these courses to count toward the degrees of A.B. and B.S. must obtain at least a grade of C.
- 4. Matriculated students electing Extension courses after having obtained the approval of the Committees on Instruction must register for these courses at the office of the Registrar and pay the fees required for such courses.
- 5. Students matriculated in Teachers College who are taking courses in Extension Teaching with a view to counting such work in partial fulfillment of the requirements for the degrees and diplomas in Education are referred to the Announcement of the School of Education for 1914-1915 for a statement in reference to a reorganization of Teachers College by which the School of Education became a graduate school after July 1, 1914, offering curricula leading only to the degrees of Master of Arts and Doctor of Philosophy. This reorganization affects in particular all students specializing in elementary or kindergarten education or in secondary education for the teaching of such academic subjects as biology, English, French, German, geography, history, Latin, mathematics, physics, or chemistry. Students whose courses may be affected by this reorganization should consult with the Secretary of Teachers College for further information and advice. The School of Practical Arts continues to award the degree of Bachelor of Science to students specializing in household arts, household or institutional administration, fine arts, industrial arts, music, physical education, nursing and health, or dietetics, or in the teaching of any of these subjects.
  - 6. No degree is given for courses taken exclusively in Extension Teaching.

# Courses in Teachers College

Teachers College in its School of Education offers to matriculated students a number of its regular courses at hours in the afternoons and on Saturday mornings which are convenient to teachers. These courses include the history and philosophy of education, educational administration, educational psychology, secondary education, elementary education,

tion, kindergarten education, and certain courses on the methods of teach ing academic subjects.

Teachers College offers also in its School of Practical Arts, at similar hours and in the evenings, some regular and a number of special classes in foods and cookery, sewing and textiles, household administration, nursing and health, household chemistry, fine arts, music, physical education, woodworking, metal-working, drawing, designing, etc. These special classes in the practical arts are open to all who are qualified to enter them.

Students matriculated or expecting to matriculate in Teachers College are referred to paragraph 5 above.

For further information see the special circular of Afternoon, Evening and Saturday Morning Courses and Special Classes which may be had on application to the Secretary of Teachers College.

## Relation of Extension Teaching to other University Work

- 1. The requirements for the degree of Master of Arts are stated in full in a bulletin entitled *Instructions for Candidates for the Degrees of Master of Arts and Doctor of Philosophy*, which will be sent upon application to the Secretary of the University. This bulletin should be consulted by all students electing graduate courses.
- 2. Students taking Extension courses who desire to become candidates for the degree of Bachelor of Arts or Bachelor of Science or for professional degrees in Science, Law, Medicine, Journalism, and Practical Arts should make application to be received as such to the Director of Admissions, Room 310 East Hall. The requirement for admission to the University as a candidate for these degrees is set forth in the Announcement of Entrance Examinations for 1915–1916, which may be obtained on application to the Secretary of the University.
- 3. Students taking Extension courses who desire to become candidates for a diploma in teaching or the degree of Bachelor of Science in Practical Arts should make application to be received as such to the Secretary of Teachers College. For full information in reference to the requirements for admission to the School of Education or the School of Practical Arts of Teachers College, also apply to the Secretary of Teachers College.
- 4. Students using Extension courses for the purpose of securing entrance credits must consult Professor Adam Leroy Jones, Room 310 East Hall. For admission to Barnard College students should consult the Dean of Barnard College before registering.

#### Absences

It is a student's duty to attend punctually each class or laboratory exercise in each course. For credit toward a degree or for a certificate of proficiency, attendance at nine-tenths of the sessions is required in addition to the proficiency attested by class work and examination.

A student may be absent without penalty in a half-year as follows: from a course meeting once weekly, twice; from a course meeting twice weekly, three times; from a course meeting three times weekly, four times; and from a course meeting four times weekly, five times.

In case this limit is exceeded, a student receiving a grade of D shall not be entitled to credit for that course; a student receiving a grade of C or higher may submit a statement showing the cause of each absence. If, in the judgment of the Administrative Board, these causes were imperative full or partial credit for the course may be assigned by the Director upon the recommendation of the Administrative Board, in accordance with the extent and reason of the student's absences and the standing attained in the course.

Tardiness counts as half an absence.

#### Examinations

Two examinations are regularly held, one at the close of the first half-year and the second on the termination of the course. A mid-term report is sent to the Director by the various instructors, approximately on November 15 and March 25. For examination at special times the fee is \$5 for each course.

Students who fulfill the conditions of registration, attendance and accomplishment of work prescribed, together with the payment in full of the fee for the course, will receive a report of standing from the Registrar within three weeks after the close of each half-year.

The student's performance in a course is reported according to the following grades; A, excellent; B, good; C, fair; D, poor; F, failure. In graduate courses P indicates passed; F, failure. H indicates a record of satisfactory attendance only.

#### Local Centres

To facilitate the work of instruction away from the University, the Administrative Board may institute local centres. Local centres may be established wherever a local community or a local organization undertakes to offer, year by year, one or more of the Extension courses of the University. Local boards of education, teachers' associations, schools, societies and clubs desirous of offering Extension courses may be constituted local centres. In general, however, a special local committee (president, secretary, treasurer, and five members representing the particular community) is the usual organization of the local centre.

Local centres are responsible, through the local committee, for the effective arrangement of Extension courses they offer. They determine the courses in co-operation with the Director; they enlist local interest; they provide, by fees or the sale of tickets or otherwise, for all the expenses of their work—the course fee, the cost of syllabi, the travelling expenses of

the lecturer, lecture-hall, janitor, printing and advertising, and when lectures are to be illustrated they must provide the lantern and operator. The Administrative Board will establish and conduct local centres where suitable arrangements may be made and sufficient guarantees secured.

#### Enrollment

Year	Morningside	Extramural	Total
1910-11	922	390	1312
1911-12	1329	271	1600
1912-13	2016	296	2312
1913-14	2664	723	3387
1914-15	3407	754	4161

The attention of Extension Teaching students is called to the graduate, college and professional courses given during the summer in the day and evening, from July 6 to August 13. Address the Secretary of the University.

#### COURSES OF INSTRUCTION

NOTE.—The University reserves the right to withdraw, substitute or change any courses which are named in this statement.

Courses corresponding and equivalent to prescribed courses of Columbia College are designated by letters A, B. A1, B1 refer to the first half-year's work (September-January) in such a course; A2, B2, to the second half-year's work (February-May). In numbered courses, odd numbers designate the first, even numbers the second, half-year.

In the statement of each course the prerequisites are indicated except that the equivalent of the first half of a hyphenated course (e. g., Botany e1-2) is usually assumed to be a prerequisite for admission to the second half.

#### Credits

The academic credit that may be awarded to students who give evidence of having completed the prerequisite work required by the several faculties is regularly indicated in connection with the statement of each course; for undergraduate courses by points, for graduate by the terms half course and full course.

For courses 100 and above credit will be determined by the various faculties under which the student intends to apply for such recognition. All courses marked Credit I—May be counted toward the degrees of A.B.

an B. S. in all parts of the University and toward appropriate diplomas in teaching. For other courses which under certain conditions may be offered for credit by candidates for the A.B. or B.S. degree, see Credit II.

IB—May be counted toward the degrees of A.B. and B.S. in Barnard College only.

Ic—May be counted toward the degrees of A.B. and B.S. in Columbia College only.

All courses marked Credit II—May be offered by graduate students toward the degree of A.M. Open also to undergraduates on the approval of the appropriate Committee on Instruction obtained in advance.

All courses marked Credit IV—May be counted for matriculated students in the School of Practical Arts toward the degree of B.S., See p. 16.

All courses marked Credit V—May be counted toward the appropriate degrees in the Schools of Mines, Engineering and Chemistry, and Architecture.

Any course numbered 100 or above may be counted for undergraduate degrees under the general rules.

The fees and points as stated with the various courses are for each half-year. In the case of non-credit courses, the number of points is published merely to give a general idea of the amount of work required of the student.

## Accounting p. 32

## Agriculture

Columbia University, through the Extension Teaching Department, offers courses in agriculture. These courses may, with the approval of the Committee on Instruction, form part of the curriculum leading to the degree of B. S. for students of Columbia College. They will also be open to students who desire to take only courses in agriculture.

It is recommended that matriculated students planning to study agriculture should enter Columbia College and take the subjects prescribed for the B. S. degree. In addition to the courses in agriculture, matriculated students should take History 55, Chemistry A, Economics 1–2, Politics 1–2, Botany 1–2, Geology 1–2, and Zoōlogy 1–2.

Students irregularly prepared and desirous of undertaking courses in agriculture should consult the Professor of Agriculture before registering for such classes: Office 511 Schermerhorn Hall.

Agriculture e1-2—Field and forage crops. Lectures and laboratory. Credit I, IV. 3 points each half-year. Professor Morgan

9–10.50 a.m., Saturday (lectures), Room 505 Schermerhorn; laboratory 10.00 a.m., Wednesday, Room 502 Schermerhorn. Fee \$18\$ each half-year

The object of this course is to give the student entering the study of agriculture a clear understanding of the main problems and principles of present day scientific agriculture. All students undertaking the study of agriculture for the first time should take at least the first half-year of this course.

First half-year. The essentials of crop production as affecting the cereal crops of America. Special attention will be given the following: crop rotation, fertilizers, manures, varieties, cultural methods, food values, harvesting, storage, farm machinery, seed improvement, selection, and testing.

Second half-year. The production of hay, grass, legumes, potatoes and roots. The management of hay fields, clovers, alfalfa, vetches, cow peas, cereals for hay; pastures, seeding and management; the selection, planting, cultural treatment, harvesting of potatoes; the production of beets, turnips and rape for stock food.

Laboratory work will include the study of the characteristics of the crops studied, judging and scoring of corn and other grains, testing for germination and purity. Excursions.

Agriculture e1a-2a—Course e1-2 with laboratory work only by special arrangement. 2 points each half-year. Fee \$12 each half-year

Section 1-4.10-5 p.m., Monday and Wednesday, Room 505 Schermerhorn

Section 2-7.40-9.30 p.m., Tuesday, Room 516 Schermerhorn

Agriculture e3-4—Soils and fertilizers. Lectures and laboratory. Credit IV. 3 points each half-year. Professer MORGAN

2.10 p.m., Monday and Friday (lectures), Room 505 Schermerhorn; laboratory 3-5 p.m., Monday, Room 102 Schermerhorn. Fee \$18 each half-year

Principles of soil management, given the first half-year, deals with the origin, composition and properties of soils; the physical, chemical and bacteriological factors: soil types and cropping systems as related to farm management. Excursions.

Fertilizers, manures and soil amendments, given the second half-year, deal with soils and crop problems in agriculture from the standpoint of soil fertility, the supply in the form of manure, etc., and the practical economic consideration of maintaining and increasing the crop-producing power of lands. Cover cropping, green manures, liming and drainage are fully considered. Special laboratory work on soils and fertilizers in the greenhouse laboratory.

Agriculture e5-6—Principles of horticulture. Lectures and laboratory. Credit IV. 3 points each half-year. Mr. Burgdorff

4.10 p.m., Tuesday and Thursday (lectures), Room 505 Schermerhorn; laboratory, 2.10-4 p.m., Tuesday, Room 502 Schermerhorn and in the greenhouse. Fee \$18 each half-year

Fruit-growing, both small and tree, will be the major consideration of the first half-year. Propagation, planting, inter-cropping, management in unproductive and productive periods, spraying, harvesting, storage and marketing; pruning, spraying, budding and grafting in their proper relation to fruit-farming, and special problems in vegetable and fruit farm management will receive emphasis. Nut culture will be treated briefly. Excursions form a part of the laboratory work.

Vegetable growing will comprise the chief part of the work of the second half year; preparation of soil, composts and seed for planting; hotbeds and cold frames, transplanting, forcing culture, companion cropping, spraying, harvesting, storage and marketing will be the main topics considered for kitchen, farm and market gardening. Flower gardening is briefly considered in Course e15, p. 22.

Agriculture e5a-6a—Principles of horticulture. Lectures and laboratory. Credit IV. 3 points each half-year. Mr. Burgdorff 7.40-9.30 p.m., Wednesday and Friday, Room 505 Schermerhorn; laboratory, 502 Schermerhorn. Fee \$18 each half-year.

**Agriculture** e**7-8—Animal husbandry.** Lectures and laboratory. Credit 1, IV, if specifically approved before registration. 3 points each half-year. Mr. Bowes

1.10 p.m., Tuesday and Thursday (lectures); laboratory 2-4 p.m., Thursday, Room 106 Schermerhorn. Fee \$18 each half-year

The object of this course is to give an introduction to the theory that underlies the management of cattle, horses, sheep, swine and poultry, and also the current practices of the management of these farm animals, including characteristics, selection and breeding. Excursions to nearby modernly equipped and operated farms will, besides regular laboratory exercises, be an essential part of the course.

All students undertaking the study of agriculture for the first time should take at least the first half-year of this course.

Agriculture e7a-8a—Course e7-8 with laboratory work omitted. 2 points each half-year

7.40-9.30 p.m., Thursday, Room 516 Schermerhorn. Fee \$12 each half-year

Agriculture e9-10—Animal husbandry. Nutrition and management. Lectures and laboratory. Credit I, IV, if specifically approved before registration. 3 points each half-year. Mr. Bowes

11 a.m., Tuesday (lectures), Room 505 Schermerhorn; laboratory 9 a.m., Thursday, Room 106 Schermerhorn. Fee \$18 each half-year

This course deals with the problems of animal physiology and nutrition during the first half-year. Feeds and principles and practices of feeding. The second half-year deals with the chief factors in management, such as rearing, training, housing and marketing. Laboratory work will be on specific problems of nutrition and management.

Agriculture e11-12—Poultry husbandry. Lectures and laboratory. Credit IV if specifically approved before registration. 3 points each half-year. Mr. WALKER

9 a.m., Tuesday; 9.30-10.20 a.m., Saturday (lectures); laboratory 10.30 a.m.-12.20 p.m., Saturday, Room 516 Schermerhorn. Fee \$18 each half-year

The course covers the main points in handling poultry for chick, egg and meat production. The important topics taken up in lectures and laboratory periods in practically the order given are: origin and development of poultry types, breeds, development of poultry raising, poultry breeding, incubation, breeding, scoring, exhibiting, foods and feeding, poultry plant location and construction, sanitation, parasites and diseases, preparation and marketing.

Several lecture periods will be devoted to considering turkeys, ducks, geese, pigeons, etc.

The concluding lectures and laboratory periods have to do with profitable poultry management. The laboratory periods will be occupied with designing and drawing plans of poultry houses and appliances, practice with incubators and brooders, eggs, caponizing, killing, picking and packing, and trips of inspection to nearby poultry farms.

Agriculture e11a-12a—Course e11-12 with laboratory work, if desired: only by special arrangement. 2 points each half-year

7.40-9.30 p.m., Monday, Room 516 Schermerhorn. Fee \$12 each half-year

Agriculture e15—Amateur floriculture. Lectures and laboratory. 2 points first half-year. Mr. Burgdorff

1.10-2 p.m., Saturday (lectures), Room 516 Schermerhorn; laboratory, 2.10-4 p.m., Saturday, Agricultural Greenhouse. Fee \$12

The purpose of this course is to acquaint the student with our best annuals and herbaceous perennials, their character, propagation, and culture. It will include a study of containers, soils, fertilizers, and insecticides as well as the preparation and planting of flower beds and window gardens.

NOTE.—If there is sufficient demand to warrant it, this course will be continued through the second half-year as Agriculture e16; in this case the subject matter will be shrubbery and its care.

## Architecture

For other courses in History of art, Decorative arts, Painting and sculpture, see p. 61, 62, for Structural mechanics, see p. 52.

The following evening courses in architecture, offered in the year 1915–16, are open to all qualified students without examination. They correspond, in part, to the work given in the School of Architecture, and equivalent courses will count toward the certificate and the degree in architecture for those who have passed the entrance examinations. See p. 6, 7 and 24 for a typical program and further information. For assistance in arranging programs in Architecture in Extension Teaching, applications should be made to the Director of Extension Teaching, Room 306 Philosophy Hall.

For schedules of subjects and their position in the regular curriculum, see the *Announcement of the School of Architecture*.

Architecture e1—The elements of architecture. Credit V. 6 points first half-year. Professor Harriman

8.20-9.10 p.m., Tuesday and Friday, Room 407 Avery. Drafting, 9.10-11 p.m., Tuesday and Friday, Room 504 Avery. Fee \$36

Mouldings, the orders, intercolumniation and superposition, balustrades, arcades, doors, windows, roofs, spires, vaults, domes.

Architecture e2—Applied elements. Credit V. 8 points second halfyear. Professor HARRIMAN

8.20-10 p.m., Tuesday and Friday, Room 504 Avery. Fee \$48

Exercises in applications of elementary architectural forms as given in Course el;
of shades and shadows as given in Course e5; both of which are prerequisite.

Architecture e5—Shades and shadows. Credit V. 4 points first half-year. Professor Sherman

7-7.50 p.m., Monday, Wednesday and Friday, Room 408 Avery: 7.30-9.10, Thursday, Room 504 Avery. Fee \$24

Brief, accurate and unique methods for determining the shadows of geometrical lines, plane figures and solids; also of the principal architectural members; practical applications.

Architecture e6—Shades and shadows. Credit V. 4 points second half-year. Mr. Allen

7-7.50 p.m., Monday, Wednesday, Friday, Room 407 Avery; 8-9.40, Thursday, Room 504 Avery. Fee \$24

Brief, accurate, and unique methods for determining the shadows of geometrical lines, plane figures, and solids; also of the principal architectural members; practical applications.

Will not be given for less than ten students.

Architecture e7—Perspective. Credit V. 3 points first half-year. Mr. Allen

7-7.50 p.m., Monday and Wednesday, Room 407 Avery; 8-9.40 p.m., Thursday, Room 504 Avery. Fee \$18

Brief, direct, and unique methods, using distance points, the office method the perspective of shadows and of reflections.

Will not be given for less than ten students.

Architecture e8—Perspective. Credit V. 3 points second half-year. Professor Sherman

7-7.50 p.m., Monday and Wednesday, Room 408 Avery; 7.30-9.10 p.m., Thursday, Room 504 Avery. Fee \$18

Brief, direct, and unique methods, using distance points, the office method; the perspective of shadows and of reflections.

Architecture e9-10—Descriptive geometry. Credit V. 3 points each half-year. Mr. Allen

8-8.50 p.m., Wednesday and Friday, Room 405 Avery. Fee \$18 each half-year

Problems relating to right lines and planes; phenomena of lines and surfaces; discussion of tangent planes; intersections and developments.

Architecture e11—Plumbing and draining. Credit V. 2 points first half-year. Mr. Walsh

8-8.50 p.m., Monday, Room 405 Avery. Fee \$12

The principles of sanitation, the methods of sewage disposal, and the design of a modern plumbing system in accordance with the New York City Building Code. Will not be given for less than ten students.

Architecture e12—Heating and wiring. Credit V. 2 points second half-year. Mr. POND

8-8.50 p.m., Monday, Room 405 Avery. Fee \$12

The different methods of heating and wiring buildings and the advantages and disadvantages of each; the rules and regulations of the New York City Building Code and of the National Board of Fire Underwriters, the preparation of working drawings for heating and wiring contracts.

Will not be given for less than ten students.

Architecture e15-16—Building materials and construction. Credit V. 3 points each half-year. Mr. Walsh

8-8.50 p.m., Tuesday and Thursday, Room 408 Avery. Fee \$18 each half-year

Properties and tests of building materials. Carpentry, slow-burning construction, steel and iron construction, masonry, fireproofing, reinforced concrete, and their appearance in buildings. Specifications.

Architecture e19-20—Architectural engineering. 2 points each half-year. Mr. POND

8-8.50 p.m., Wednesday and Friday, Room 408 Avery. Fee \$12 each half-year

Steel construction. The design, without the calculus, of beams, girders and columns, and by graphical analysis of roof trusses, piers, arches and retaining walls.

Architecture e27—Ancient architecture. Credit I. 1 point first half-year if taken with one other course. Curator Bach

4.10-5 p.m., Monday, Room 407 Avery. Fee \$3

The ancient architecture of Egypt, Assyria, Persia, Greece, and Rome. Will not be given for less than ten students.

Architecture e28—Medieval architecture. Credit I. 1 point second half-year if taken with one other course. Curator BACH

4.10-5 p.m., Monday, Room 407 Avery. Fee \$6

Early Christian and Byzantine architecture; the Romanesque and Gothic styles in Italy, France, England, Germany, Spain, and the Netherlands; analytical and critical discussion of the historic development, characteristics and chief examples of the medieval styles.

Will not be given for less than ten students.

Architecture e29—Renaissance architecture. Credit I. 1 point first half-year if taken with one other course. Curator Back

4-4.50 p.m., Friday, Room 407 Avery. Fee \$6

The architecture of the Renaissance in Italy and France. Analytical and critical discussion of historic development and great examples of architecture since 1420 Will not be given for less than ten students.

Architecture e30—Renaissance, modern and Oriental architecture Credit I. 1 point second half-year if taken with one other course. Curator Bach

4-4.50 p.m., Friday, Room 407 Avery. Fee \$6

The architecture of the Renaissance in Germany, Spain, and the Low Countries; architecture of the 19th century in Europe; American architecture, modern and contemporary developments and tendencies; Moslem and Oriental architecture; analytical and critical discussion of historic development and great examples of architecture since 1420.

Will not be given for less than ten students.

Architecture e31-32—Ancient ornament. Credit I, V. 2 points each half-year. Curator BACH

6-6.50 p.m., Thursday, Room 407 Avery. Fee \$12 each half-year

General classifications; origins; primitive and savage ornament; the historic ornament of Egypt, Assyria, Persia, Greece and Rome, including Ægean, Cypriote, Phoenician and Etrusean ornament; the development of the styles, the common motives and patterns of both architectural ornament and the minor arts.

Will not be given for less than ten students.

Architecture e37—Medieval ornament. Credit I, V. 2 points first half-year. Curator Bach

6-6.50 p.m., Tuesday, Room 407 Avery. Fee \$12

The ornament of the early Christian, Byzantine, Romanesque and Gothic styles both in architecture and the minor arts; the development of styles, motives and patterns.

Will not be given for less than ten students.

Architecture e38—Modern ornament. Credit I, V. 2 points second half-year. Curator Bach

6-6.50 p.m., Tuesday, Room 407 Avery. Fee \$12

The ornament of the Renaissance in Italy, France, Germany, Spain, the Netherlands and England; American "Colonial" ornament; developments in the 19th century in Europe and America; modern phases and tendencies in ornament. Will not be given for less than ten students.

Architecture e71-72—Drawing. Credit V. 2 points each half-year.
Professor Harriman

 $8\dot{-}9.40$  p.m., Monday and Thursday, Room 502 Avery. Fee \$12 each half-year

Drawing in outline; isometric; from cast. Drawing e71 or e80 is prescribed for e72.

Architecture e75—Drawing. Credit V. 2 points first half-year. Professor Harriman

8-9.40 p.m., Monday and Thursday, Room 502 Avery. Fee \$12 Advanced charcoal drawing from cast. Pen and ink. Prerequisite: e71-72, or e80 and e72.

Architecture e76—Drawing. Credit V. 2 points second half-year.
Professor Harriman

8-9.40 p.m., Monday and Thursday, Room 502 Avery. Fee \$12

Advanced charcoal drawing from cast. Pen and ink. Course e75 repeated.

Prerequisites: e71-72, or e72 and e80.

Architecture e80—Drawing. Credit V. 2 points second half-year. Professor Harriman

8-9.40 p.m., Monday and Thursday, Room 502 Avery. Fee \$12. Drawing in outline; isometric; from cast. Equivalent to Drawing e71.

## Design

The courses in Design are conducted on the basis of a progressive series of problems and sketches. These are assigned in the form of programs issued at stated intervals. The work of the students, delivered at a designated time, is passed upon by a jury of architects, the whole program being in this respect identical with that of the Society of Beaux-Arts Architects. A registration fee of two dollars is required by this Society; this must be paid to the Chairman of the Committee on Education, 126 East 76 Street, New York City. More detailed information on this head will be given at the first meeting of the courses.

## Tuition Fees for Design

The tuition fee in Design, regardless of course, is \$50 per year. This is payable as follows: At registration, (before the first sketch is taken), \$20; two months after registration, \$30. **The fee is not divided into term payments.** For reasons of weight students may be admitted at the beginning of the second, third, fourth, or fifth problem. In such cases the full fee will be reduced \$10 for each problem missed and the remainder of the fee for the year will be payable as a single sum at registration. Stu-

dents are advanced in accordance with the regulations of the Society of Beaux-Arts Architects on the basis of values obtained.

NOTE.—The full fee of \$50 covers registration for five regular projects of the Beaux-Arts Society. No additional fee is required for ten-hour sketches or for archaeology problems.

Sketches and problems will be accepted only after tuition fees have been paid as indicated above.

Prerequisites for all courses. Work in the Elements of architecture and Shades and shadows, corresponding respectively to e1, e2, and e5, or their equivalents, such equivalents to be determined by Mr. Ware before registration. Those who wish subsequently to transfer their credits to the records to the School of Architecture must also submit Descriptive geometry, Architecture e9–10, or its equivalent

Students may meet the instructors on September 25 and October 2 at 2 p.m., and on September 29 at 8 p.m., in Room 202 Avery.

Architecture e61-62—Elementary design. Credit V\*. 20 hours. Mr. Ware, Mr. Hamlin and Mr. Schulz

Room 202 Avery. Fee, see above

Major and minor problems corresponding to the Class B Analytique Problems of the Society of Beaux-Arts Architects.

Architecture e63-64—Intermediate design. Credit V\*. 20 hours. Mr. Ware, Mr. Hamlin and Mr. Schulz

Room 202 Avery. Fee, see above

Major and minor problems corresponding to the Class B Problems (Projets) of the Society of Beaux-Arts Architects.

Architecture e65-66—Advanced design. Credit V\*. 20 hours. Mr. Ware, Mr. Hamlin and Mr. Schulz

Room 202 Avery. Fee, see above

Major and minor problems corresponding to the Class A Problems (Projets) of the Society of Beaux-Arts Architects.

# Architectural Drafting

Architecture eX1—Architectural detailing. 4 hours drafting-room work per week; 2 points first half-year. Mr. Sherlock

7-9 p.m., Tuesday and Friday, Room 202 Avery. Fee \$12

A study of architectural details such as cornices, mouldings, etc. Full-sized drawings and scale drawings will be made from sketches.

Will not be given for less than ten students.

\*Students desiring credit for this course in the School of Architecture must submit a complete set of drawings done in Extension Teaching up to the time of the application for transference of credit and bearing the attestation of the instructor in charge. Requests for such transference of credit should be made to Mr. R. F. Bach, Curator of the School of Architecture, or left in writing for him at the office of the Director of Extension Teaching. The difference in tuition fees must be paid.

Architecture eX2—Architectural detailing. 4 hours drafting-room work per week; 2 points second half-year. Mr. Sherlock

7-9 p.m., Tuesday and Friday, Room 202 Avery. Fee \$12

A study of architectural details such as cornices, mouldings, etc. Full-sized drawings and scale drawings will be made from sketches.

Course eX1 repeated. Will not be given for less than ten students.

## Bookkeeping

Bookkeeping e1-2—Secretarial bookkeeping. 2 points each half-year. Mr. Hughes

9.20-11 a.m., Saturday, Room 505 Journalism. Fee \$12 each half-year

A knowledge of bookkeeping is not required of students taking this course. The purpose is to prepare the student to keep the books of the professional man as well as to interpret the books of a modern business. From the study of a few simple accounts the work will proceed to a drill in double entry as applied to a trading concern. Exercises in single entry as applied to the professions of law and medicine will be prepared. Some of the special features of this course will include the preparation of various business forms and reports; the analysis of accounts and financial statements; the preparation of bank reconcilements; the study of household and hotel accounts; the accounts of institutions, such as libraries, hospitals, clubs, and associations. Students who are planning to become accountants should elect Accounting el-2 or Economics e171-172.

Bookkeeping e4—Secretarial bookkeeping. 2 points second halfyear. Mr. Hughes

4-5.40 p.m., Wednesday, Room 505 Journalism. Fee \$12

This course, beginning in February, is equivalent to the first half-year of the preceding course, and is planned for secretarial students who have never studied bookkeeping. It should be followed in September by Course e5.

Bookkeeping e5—Advanced secretarial bookkeeping. 2 points first half-year. Mr. Hughes

4-5.40 p.m., Wednesday, Room 505 Journalism. Fee \$12

A continuation of Course e4 for students who begin the study of bookkeeping in February and for those who already have some acquaintance with the subject.

## Botany

Botany e1-2—Nature and development of plants. Lectures and laboratory. Credit I, IV. 4 points each half-year. Dr. Dodge and Mr. Altenburg

7.20–8.35 p.m., Monday and Thursday, Room 505 Schermerhorn. Laboratory 8.35–9.50 p.m., Room 502 Schermerhorn. Fee \$24 each half-year

Organs, structure and work of the plant; development of plant life through an examination of the important biologic types.

Botany e1a-2a—General botany. Lectures and laboratory. Credit I, IV. 2 points each half-year. Dr. Dodge and Mr. Altenburg 1.10 p.m., Saturday, Room 505 Schermerhorn. Laboratory 2.10-4 p.m., Room 502 Schermerhorn. Fee \$12 each half-year

Botany e3-4—Edible and poisonous fungi. Credit IV. 2 points each half-year. Dr. Dodge

2 p.m., Saturday, Room 505 Schermerhorn. Laboratory 3-4 p.m., Saturday, Room 502 Schermerhorn. Fee \$12 each half-year

Laboratory work on the identification of the common types with field excursions for collecting and photographing specimens.

Botany e5-6—Students having completed the preceding courses may continue their work by registering for this course, the hours and character of the work to be determined upon consultation with Professor Harper. Credit I. 2 points each half-year. Fee \$12 each half-year

## Chemistry

Chemistry eA1—General chemistry. Elementary course for students beginning the study of chemistry. 2 lectures, 1 recitation and 2 hours laboratory practice. Credit I, IV. 4 points first half-year. Professor Neish and assistant

7-9.50 p.m., Tuesday, and 7.30-9.20, Friday, Room 301 Havemeyer. Fee \$24

This course is the duplicate of the day course A1. It is prerequisite to the other courses in chemistry given in Extension Teaching and to the first-year chemistry in the combined six-year College and Engineering course.

Deposit for breakage \$15.

Text-books: Smith's Elementary Chemistry and Laboratory Outline (interleaved).

Chemistry eA2—General chemistry. Course eA1 repeated in the second half-year for students desiring to begin in February. Credit I, IV. 4 points second half-year. Mr. HAESELER

7-9.50 p.m., Tuesday, and 7.30-9.20, Friday, Room 301 Havemeyer. Fees as for eA1 above

Chemistry e6—General inerganic chemistry. 3 hours classroom and 6 hours laboratory work. Credit I, IV, V. 6 points second half-year. Professor Neish and assistant

7-9.50 p.m., Tuesday, Wednesday, and Friday, Room 311 Havemeyer. Fee \$36

This course, which presupposes a knowledge of general chemistry (eA1), continues the study of general chemistry, with particular reference to giving a greater knowledge of descriptive chemistry and a more advanced and systematic discussion of general principles and their applications. This course followed by e7 aims thus to prepare the student for the courses in organic chemistry or in qualitative analysis. It is equivalent to Chemistry 6 - required of all first-year students in the combined six-year College and Engineering course, or to 3-

Deposit for breakage \$15.

Text-books: Smith's Introduction to Inorganic Chemistry and Laboratory Outline. Prerequisite: Chemistry eA1 or the equivalent.

NOTE.—Chemistry eA1 followed by e6 is accepted for admission to the College of Physicians and Surgeons.

Chemistry e7—General inorganic chemistry. 3 hours classroom and 6 hours laboratory work. Credit I, IV, V. 6 points first half-year. Mr. Leslie and assistant

7-9.50 p.m., Tuesday, Wednesday, and Friday, Room 311 Havemeyer. Fee \$36

This course is a continuation of Chemistry e6. It is equivalent to Chemistry -7 required of all second-year students in the combined six-year College and Engineering course, or to -4.

Deposit for breakage \$15.

Prerequisite: Chemistry e6 or the equivalent.

Chemistry e14—Qualitative analysis. 2 lectures and 6 hours laboratory work. Credit I, IV, V. 5 points second half-year. Mr. Leslie 7.30-9.50 p.m., Tuesday, Wednesday, and 7-9.50, Friday, Room 511 Havemeyer. Fee \$30

A systematic course in the theory and practice of inorganic qualitative analysis based upon the principles of modern chemistry. It is equivalent to 14- required of all second-year students in the combined six-year College and Engineering course, or to 11-.

Deposit for breakage \$15.

Text-book: Steiglitz' Qualitative Analysis, Pt. I.

Prerequisite: Chemistry e6-7, 6-7 or 3-4.

NOTE.—Students who have previously completed the greater part of this course may, with the consent of the Director, register for the remainder, counting it 1 to 3 points.

Chemistry e15—Qualitative analysis. 2 lectures and 6 hours laboratory work. Credit I, IV, V. 5 points first half-year. Dr. CALVERT 7.30-9.50 p.m., Tuesday, Wednesday, and 7-9.50, Friday, Room 511 Havemeyer. Fee \$30

This course is a continuation of Chemistry e14. It is equivalent to -15 required of all third-year students in the combined six-year College and Engineering course, or to -12.

Deposit for breakage \$15.

Text-book: Steiglitz' Qualitative Analysis, Pt. I.

Prerequisite: Chemistry e14, 14- or -12.

NOTE.—Students who have previously completed the greater part of this course may, with the consent of the Director, register for the remainder, counting it 1 to 3 points.

Chemistry e41-42—Organic chemistry. Introductory course. 3 hours classroom and 6 hours laboratory work. Credit I, IV, V. 6 points each half-year. Dr. FISHER and assistant

7-9.50 p.m., Tuesday, Wednesday and Friday, Room 413 Havemeyer. Fee \$36

Instruction is given on the more important classes of organic compounds, as the hydrocarbons, halogen derivatives, nitro-compounds, alcohols, phenols, ethers, aldehydes, ketones, carbohydrates, acids, esters, amines, cyanides and the simple nitrogen heterocycles. The lectures will be illustrated by experiments and material from the Chandler Chemical Museum. The laboratory work includes a study of the more important syntheses and reactions of the different classes of organic com-

pounds. This course is accepted as the equivalent of Chemistry 41-42 and is of special advantage to students of pharmacy and medicine.

Deposit for breakage \$25.

Prerequisite: Chemistry e6-7 or the equivalent.

Chemistry e72—Quantitative analysis, inorganic. 2 hours classroom and 6 hours laboratory work. Credit I, IV. 5 points second half-year. Dr. CALVERT

7.30-9.50 p.m., Tuesday, Wednesday, and 7-9.50, Friday, Room 309 Havemeyer. Fee \$30

Short course, including typical volumetric, gravimetric, electrolytic and gasometric methods.

Deposit for breakage \$15.

Prerequisite: Chemistry e14-15, 14-15 or 11-12.

Chemistry e73—Sanitary bacteriological analysis. 2 hours classroom and 6 hours laboratory. 5 points second half-year. Mr. Buswell. and assistant

7.30-9.50 p.m., Tuesday, Wednesday, and Friday, Room 515 Havemeyer. Fee \$30

Practical instruction in bacteriology. Bacteriology of water, sewage, milk, etc. A short course for sanitary engineering students.

Deposit \$15.

Prerequisite: e72 or 65.

Chemistry e79—Sanitary biological and chemical analysis. 2 hours classroom and 3 hours laboratory work. 3 points first half-year. Mr. Buswell and assistant

7.30-9.50 p.m., Tuesday and Wednesday, Room 515 Havemeyer. Fee \$18

Microscopy of drinking-water, causes of taste, odor, and turbidity. Sanitary chemical water analysis.

Deposit \$15.

Prerequisite: e72 or 65.

#### Civil Service

Civil service e1-2—General instruction. 4 points each half-year. Mr. Duncan

8.30-9.45 p.m., Wednesday and 6-7.15 p.m., Saturday, Room 713 Journalism. Fee \$24 each half-year

This course is specially planned to meet the needs of those persons who contemplate taking examinations for civil service positions in the municipal, state, and federal service. On account of the wide field of this preparation students will be grouped, as far as possible, according to the special department they wish to enter and according to their individual needs. Besides giving adequate instruction in the general subjects of arithmetic, English grammar, English composition, report writing, commercial geography, United States history and civil government, penmanship and copying, the course will provide special instruction for specific examinations.

Students who take this course are expected to have personal conferences with the instructor at such times as he may designate. Persons who contemplate taking this course should consult with the instructor before they register.

### COMMERCE AND INDUSTRY

## Accounting

## Evening Courses

Accounting e1-2—Elementary accounting. 2 points each half-year. Mr. Baltz

7.40-9.30 p.m., Monday, Room 511 Journalism. Fee \$12 each half-year

A knowledge of bookkeeping is not required of students taking this course. The principles of accounting and the technique of bookkeeping will be developed from a few simple accounts to the complete system of accounts required by a modern business, covering the journal, main cash book, petty cash book, sales book, purchase book, bill book, columnarization of books of original entry, controlling accounts, secondary ledgers, profit and loss statements and balance sheets.

The use of business forms such as checks, notes, drafts, bills of lading, consignments, account sales, etc., will be explained and applied in the work; statements will be prepared; conversion from single proprietorship to partnership will be made. A brief study will be made of single entry, and problems illustrating how to change a set of books from single to double entry will be solved.

The work of the first half-year will include double entry bookkeeping for a single proprietor and a partnership, involving the use of the journal, cash book, sales book, purchase book, bill book and ledger.

**Accounting** e1a—Elementary accounting. 2 points first half-year. Mr. Baltz

7.40-9.30 p.m., Thursday, Room 512 Journalism. Fee \$12

This course is planned for students who have had e1 or the equivalent. Identical with Accounting e2.

Accounting e2a—Elementary accounting. 2 points second half-year. Mr. Baltz

7.40-9.30 p.m., Thursday, Room 512 Journalism. Fee \$12 A course for beginners. Identical with Accounting e1.

Accounting e3-4—Principles of accounting. 2 points each halfyear. Mr. Koopman

7.40-9.30 p.m., Thursday, Room 511 Journalism. Fee \$12 each half-year

The principles underlying the science of accounting will be developed in logical order by means of lectures, specially graded problems, and assigned readings. The student will be given the opportunity to apply his knowledge of principles by recording transactions and solving problems connected with trading and manufacturing organizations. To obtain the necessary material for an application of the principles and to show the effect of various types of ownership, a business will be organized and conducted by a sole proprietor. The capital will be increased and the scope of the business enlarged by admitting a partner. Later, in order to limit the partners' liability and to obtain the other benefits of the corporate form, a corporation will be organized. This corporation will merge with another corporation, the merged company will consolidate with other companies, and finally a holding company will be formed. In connection with this work the results of operations will be shown by means of profit and loss statements, balance sheets, statements of affairs and deficiency accounts, and realization and liquidation accounts.

Partnership and corporate problems will receive special attention. The partnership will be terminated in three ways; liquidation as a solvent concern, liquidation as an insolvent concern, and by transfer to a corporation. The corporation will illustrate the use of the voucher system of accounting and will present problems in connection with good will, the issue of stocks and bonds, the establishment of sinking funds, the payment of dividends and all the various other problems that arise in the practical management of a corporation.

The extent of the work is indicated by the following additional topics which will be discussed and applied in a practical manner in the solution of problems: single entry vs. double entry; methods of determining profits; classification of accounts; reconciling reciprocal accounts; consignment and joint venture accounts; loans from partners; equation of accounts; calculation of depreciation (six methods); accrued items; deferred charges and credits; elements of costs; reserves; fire losses; stocks at par, book, real and market value; treasury stock; surplus statements; liquidation of corporations.

To make the application of principles more concrete, each student will be required to prepare a special report on some business with which he is familiar, either by experience or through investigation.

Prerequisite course: Elementary accounting e1-2 or equivalent.

Cost of text-book and blanks \$10.

Accounting e3a—Principles of accounting. 2 points first half-year.

Mr. KOOPMAN

7.40-9.30 p.m., Friday, Room 505 Journalism. Fee \$12

This course is identical with Accounting e4.

Accounting e4a—Principles of accounting. 2 points second halfvear. Mr. KOOPMAN

7.40-9.30 p.m., Friday, Room 505 Journalism. Fee \$12

This course is identical with Accounting e3.

**Accounting** e5-6—Practical accounting. 2 points each half-year. Mr. Boyce

7.40-9.30 p.m., Friday, Room 511 Journalism. Fee \$12 each half-year

This course will be a continuation of the first year accounting course and will cover a more advanced field.

Practical problems taken from C. P. A. examinations and from practical experience are assigned to the students each week. Questions in theory are also assigned. The students are expected to devote a certain amount of outside time to familiarizing themselves with the problems and questions in order that classroom work may proceed rapidly.

The preparation of consolidated balance sheets and profit and loss statements will be demonstrated.

Accounts peculiar to the following classes of enterprises are considered: banks; insurance; brokers; mining; municipal; broweries; hotels; clubs; public service corporations, including gas, water, electric light and power, telephone, steam and electric railways; contractors and engineers.

Prerequisite: Principles of accounting. Cost of text-book and problems \$10.

Accounting e7—Cost accounting. Principles and theory. 2 points first half-year. Mr. Nicholson

7.40-9.30 p.m., Wednesday, Room 511 Journalism. Fee \$12

The following is the general outline: Elements of costs; principles and general methods of cost finding; direct and indirect costs; direct and indirect expenses; wage systems; recording material and labor costs; compiling the cost data; control of cost records by financial books.

A text-book on cost accounting will be used as a basis for home assignments.

Accounting e7a—Practical cost accounting. 2 points first halfyear. Mr. Waffle

7.40-9.30 p.m., Friday, Room 707 Journalism. Fee \$12

This course is identical with Accounting e8, but is given in the first half-year.

Accounting e8—Cost accounting. Practice and practical cost accounting. 2 points second half-year. Mr. Nicholson

7.40-9.30 p.m., Wednesday, Room 511 Journalism. Fee \$12

The following is the general outline: Examination of plants; devising of cost systems; estimating of cost systems; departmental cost systems; special order systems according to productive labor and machine cost plans; productive systems according to productive labor and machine cost plans.

A text-book on cost accounting will be used as a basis for home assignments. Prerequisite: Accounting e7.

Accounting e9-10—Auditing, theory and practice. 2 points each half-year. Professor Montgomery

7.40-9.30 p.m., Tuesday, Room 511 Journalism. Fee \$12 each half-year

This course is a continuation of the second-year work and is for advanced students only. A text-book on auditing will be used as a basis for home assignments, and students will be expected to spend at least two hours each week preparing for the quiz which forms part of the class room work. Students will be taught to prepare working audit programs for various classes of businesses. The principal object of this course will be to train and develop the analytical faculties of the students. Methods of accounting used by unsuccessful concerns will be explained and the causes of failure analyzed. Methods followed by concerns which need capital involving hypothecation of assets, and manipulation of accounts with allied and subsidiary concerns will be discussed.

Prerequisite: Practical accounting.

Students can apply the essential underlying principles of auditing as developed in this course to practical work by taking Accounting e13-14 (laboratory course) as a parallel course.

Accounting e13-14—Advanced accounting. Laboratory course. 2 points each half-year. Fee \$12 each half-year. Mr. Byrnes

Section 1—7.20-9.30 p.m., Monday, Rooms 503 and 505 Journalism Section 2—7.20-9.30 p.m., Thursday, Rooms 503 and 505 Journalism

This course consists of laboratory work exclusively. The material used will be the account books of various firms and corporations which have gone into bankruptcy or liquidation. These records present many interesting and complicated problems. Many sets of books are available, offering a wide scope for analysis and investigation. Practical questions and problems compiled from these old records will be given to the student to answer and solve by an actual examination of the books.

These will give the student a practical working test under conditions which very closely correspond to those to be met in actual practice, and the course will be particularly advantageous to students who have had only a limited opportunity to examine books used by various classes of enterprises.

The laboratory also contains many blank forms, designed for different classes of enterprises. The purpose of the forms will be explained and the student will be given instruction in the constructive work of designing forms and stationery for the recording of various classes of information.

Prerequisite: A thorough knowledge of accounting.

Two prizes, one of \$25 and one of \$15, offered by the New York State Society of Public Accountants will be awarded to students who take the evening course in the accountancy laboratory for the coming year. For information as to these prizes consult Professor Montgomery.

# Accounting e15-16—Transportation accounting. 2 points each half-year. Mr. Boyce

7.40-9.30 p.m., Wednesday, Room 507 Journalism. Fee \$12 each half-year

This course is designed for students who are especially interested in steam and electric railway accounting, and who have a comprehensive knowledge of general accounting.

These lectures are to be supplemented by black board work as well as test problems, and will comprise discussions on transportation accounting from its early development in this country to the establishment of uniform classification of accounts by state and federal authorities. The essential features of the Inter-State Commerce Commission's Classification of Accounts will be explained and the requirements of the various classifications issued by state and federal authorities will be compared.

The accounts included in the following general subdivisions will be discussed at length: capital accounts; construction accounts; equipment accounts; operating accounts. Financial and statistical statements, including those required by the various commissions will be submitted and discussed.

# Accounting e17—Income tax procedure. 2 points first half-year. Professor Montgomery

7.40-9.30 p.m., Thursday, Room 601 Journalism. Fee \$12

This course is intended for those who are interested in the administrative features of the federal income tax law and who have returns to compile for themselves or others. The economic aspects of income tax legislation, underlying principles, history, etc., will not be presented, but it is expected that students will read or consult Professor Seligman's book "The Income Tax" prior to the opening of the class so that they may have a general idea of the theoretical side of the subject.

The federal law will be analyzed, and the returns required from individuals, corporations and those acting in a fiduciary capacity will be explained in detail.

The regulations and decisions issued by the commissioner of internal revenue, and the points of variance between the law and the regulations which have caused difficulties to those who have tried to comply with the law will be discussed and illustrated.

It is believed that at present there is no uniform method of treatment with respect to statutory deductions such as depreciation, interest and losses.

It is desirable that the returns should indicate the full tax to which the Government is entitled, but it is equally important that no greater income be reported than is taxable under the law. The closest study will be given to the regulations which conflict with the law, some of which have been rescinded; others no doubt will be reconsidered.

## Day Courses

Economics e171-172—Principles of accounting. Known in college as e71-72. Credit II. Half course each half-year. 2 hours throughout the year. Fee \$12 each half-year. Charge for materials \$4

Section 1—5.10-6 p.m., Tuesday and Thursday, Room 503 Journalism. Professor Montgomery

Open only to students who have had two years of College work or the equivalent.

Section 2—4.10-5 p.m., Tuesday and Thursday, Room 511 Journalism. Mr. Kester

Not open to Columbia College students.

The necessity for accurate records is developed by a brief survey of account-keeping from its earliest stages. The terminology and underlying principles of accounts are explained.

The financial position of one starting in business is discussed, and from this point the sequence of transactions usual in business practice is explained and illustrated. Representative types of transactions, in series and groups, are worked out in class and laboratory so that a complete grasp of double entry bookkeeping may be secured.

The following will be covered: Assets and liabilities, revenues and expenses, sales, purchases, cash, journals, ledgers and other books. Classification of accounts, real and nominal, trial balances, balance sheets. True costs involving accruals of earnings and expenses. Rules for debits and credits. Ascertaining the profit or loss for a stated period from single entry records, and converting single into double entry books. Inventory valuations.

The technique of accounts—more than accuracy required. Partnership and corporation accounts developed. The determination of actual profits or losses, and the best method of stating results so that those for whom they are intended will understand them.

Economics e173-174—Advanced accounting. Credit II. Half course each half-year. Professor Montgomery and Mr. Kester

4.10-5.30 p.m., Monday and Wednesday, Room 511 Journalism. Fee \$12 each half-year

Starting with the accounts sufficient for a simple business, the evolution of modern business enterprises is followed and their needs anticipated by accounting procedure and methods designed to place the accounting department in its proper place, viz., as one of the major departments of every up-to-date concern. The following are covered in this course: Departmental branch, and subsidiary accounts, involving statistical methods, columnar books, loose leaf and voucher systems, etc. Reserve funds and accounts. Good will depreciation. Consolidated balance sheets and profit and loss statements. Consolidations holding companies. Preferred and common capital stock and bond accounts, stock dividends.

Accounting methods peculiar to various classes, such as banks, railroads, department stores, professionals.

Problems illustrating the foregoing must be worked out by the students, who will have the use of and will be given assignments for work in the laboratory.

Reports of corporations will be explained and criticized.

Cost of text and material \$5.

Prerequisite: Economics e171-172 or the equivalent.

# Economics e177-178—Advanced accounting laboratory course. Credit II. Half course each half-year. Mr. Kester

4.10-6-30 p.m., Friday, Room 503 Journalism. Fee \$12 each half-year

This course consists of laboratory work exclusively. The material used will be the account books of various firms and corporations which have gone into bank-ruptcy or liquidation. These records present many interesting and complicated problems. About twenty sets of books are available, offering a wide scope for analysis and investigation. Practical questions and problems compiled from these old records will be given to the student to answer and solve by an actual examination of the books.

This will give the student a practical working test under conditions which very closely correspond to those to be met in actual practice and the course will be particularly advantageous to students who have had only a limited opportunity to examine books used by various classes of enterprises.

The laboratory also contains many blank forms, designed for different classes of enterprises. The purpose of the forms will be explained and the student will be given instruction in the constructive work of designing forms and stationery for the recording of various classes of information.

Open only to students who thoroughly understand accounting.

#### Commercial Arithmetic

# Commercial arithmetic e1—Elementary business arithmetic. 2 points first half-year. Mr. Van Tuyl

7.40-9.30 p.m., Monday, Room 612 Journalism. Fee \$12

Thorough review of fundamental operations as applied to everyday business transactions, particular attention being given to simple, short, practical methods of calculation. Special topics considered are: Aliquot parts as applied to multiplication, division, percentage and interest; rapid calculations; checking results; fundamental principles of arithmetic as used in the solution of problems; practical measurements; graphs; percentage and its applications; bank discount. The course is planned to meet the needs of teachers of business arithmetic, and of clerks and others desiring to become more efficient in arithmetical work.

# Commercial arithmetic e2—Advanced business arithmetic. 2 points second half-year. Mr. VAN TUYL

7.40-9.30 p.m., Monday, Room 612 Journalism. Fee \$12

Presupposes a working knowledge of elementary business arithmetic. This course will include such topics as insurance, taxes, stocks, bonds, exchange, United States customs, equation of accounts. Calculating tables will be introduced and used in solving problems. The work is designed to be helpful to teachers of business arithmetic in secondary schools and in private business schools; also to clerks in banks, brokerage houses, etc.

### Commercial Law

Commercial law e1-2—Contracts. Credit I. 2 points each halfyear. Professor Gifford

7.40-9.30 p.m., Tuesday, Room 515 Kent. Fee \$12 each half-year

This course aims to furnish an exposition of the fundamental principles of the law of contracts, including parties, subject matter, the essentials of mutual assent, formal requisites, consideration, construction, discharge, and consequences due to breach of contract.

Text-book: Ashley's Cases on Contracts.

Commercial law e4—Negotiable instruments. 2 points second half-year. Mr. Currier

7.40-9.30 p.m., Wednesday, Room 515 Kent. Fee \$12

The object of this course is to acquaint students with the history of negotiable paper and to give them a correct idea of the legal principles governing the rights and duties of the various parties to it. It is not intended for law students but for persons who intend to engage in business. An attempt will be made to discuss the everyday questions which confront the business man in his use of bills, notes and checks, and to teach the student how to solve them.

Text-book: Smith and Moore's Cases on Bills and Notes.

Commercial law e6—Corporation law. 2 points second half-year. Professor Wormser

7.40-9.30 p.m., Thursday, Room 515 Kent. Fee \$12

The nature and formation of private corporations; their management, including the issue and transfer of stock, the rights and liabilities of promoters, stockholders and directors; the proper method of holding corporate meetings and keeping the records thereof; the taxes required of an ordinary business corporation.

Text-book: Canfield and Wormser's Cases on Corporations.

Commercial law e7-8—Torts. 2 points each half-year. Mr. Currier

7.40-9.30 p.m., Thursday, Room 614 Kent. Fee \$12 each half-year

A comprehensive study of the entire subject of wrongs to persons and property. Beginning with a survey of the nature of tort liability in general, it follows with a consideration of such specific wrongs as assault, defamation, deceit, malicious prosecution, conspiracy, right of privacy and unfair competition, trespass and nuisance. The course concludes with a consideration of the topic of negligence and the relationship of master and servant at common law and as modified by workmen's compensation acts.

#### Economics

## Evening Courses

Economics e1-2—Principles of economics. Credit I, IV. 3 points each half-year. Fee \$18 each half-year

Section 1—4.30-5.45 p.m., Tuesday and Friday, Room 302 Engineering Mr. ROHNSON

Section 2—7.30-10 p.m., Saturday, Room 612 Journalism. Dr. Haig Economics is the study of business activity from the standpoint of public welfare. This course undertakes first to explain the present-day organization and operation of industry and second to consider how far the present situation needs correction from the standpoint of efficiency in production and justice in distribution. The first half-year will be concerned with a historical and analytical study of the principles. The second half-year will be chiefly concerned with practical economic problems, such as the tariff, money and banking monopolies, the labor problem, etc.

The course presupposes a knowledge of European and American history.

# **Economics** e3-4—Business organization and administration. 2 points each half-year. Dr. Stevens

7.40-9.30 p.m., Monday, Room 512 Journalism. Fee \$12 each half-year

Forms of business and industrial organization; where to incorporate; the charter organization meetings, election of officers; proxies and voting trusts; standing committees and functions; line and staff; plant location and construction; purchasing and receiving departments; stores keeping and perpetual inventories, the production department and production routine; payment of employees and workmen; credits and collections; sales organization; advertising department; traffic and shipping; office organization and management; time systems; filing, indexing and card record systems; graphic records; office appliances and equipment; the business efficiency movement.

# **Economics** e5-6—Commercial geography. Credit I, IV. 2 points each half-year. Professor McFarlane

7.40-9.30 p.m., Thursday, Room 203 Hamilton. Fee \$12 each half-year

This course is concerned with a study of the leading industrial and commercial activities of the great nations, with especial reference to the United States. The physical conditions which influence the production of raw materials, the development of manufactures, the laying out of routes of trade, and the location of markets are first considered, and emphasis is then placed upon the production and distribution of the materials which enter into food, clothing and shelter.

# Economics e13-14—Railway traffic and rates. 2 points each half-year. Professor G. G. Huebner

7.40-9.30 p.m., Tuesday, Room 203 Hamilton. Fee \$12 each half-year

First half-year. An outline of the characteristics, sources and volume of American freight traffic; the organization and functions of the freight traffic department and of freight traffic associations; the general movement of freight rates; freight classification and tariffs; description of the rate-making machinery; of the competitive factors affecting rates, and of the bases of rates; rate-making practice and rate theories; regional rate structures; rates in leading foreign countries.

Second half-year. Methods of developing freight traffic; freight claims; car service problems; private car lines; fast freight lines; time and preference freight arrangements; terminal freight services; and freight routing; the public regulation of railroads—federal, state and judicial (commissions, statutes and procedure); passenger traffic—nature and volume; organization of the passenger department and of passenger traffic associations; classification of passenger services; passenger fares; the baggage service; and the development of passenger traffic; express traffic and rates.

### Economics e15-16—Practical advertising. 2 points each half-year. Mr. Hubbart

7.40-9.30 p.m., Tuesday, Room 213 Hamilton. Fee \$12 each half-year

Primarily this course deals with the theory, technique and practice of advertising, with the object of giving the student a definite idea of the nature of advertising as a factor in business, and a fair understanding of its use and value in the promotion of sales. The course is conducted, however, as an idea class with the purpose of studying the origin of salesbuilding ideas and how they may be applied to copy designed for use in creating sales. To this end assignments are given in the formulation of campaigns; copy and ideas are analyzed to discover their proper adjustment to the selling problems incidental to the marketing of prescribed commodities. All class discussions are based on copy and ideas turned in by the student.

Particular attention is devoted to the special features of retail publicity, and the fundamental aspects of national, consumer, class, trade and technical advertising are discussed in detail.

Students are advised to take Psychology of advertising and Commercial English as parallel courses.

### Economics e17—Salesmanship. 2 points first half-year. Mr. Hubbart

7.40-9.30 p.m., Thursday, Room 213 Hamilton. Fee \$12

Selling and the prime essentials of salesmanship are considered in this course. The student is given a grounding in the principles of selling, and practice in the presentation of a selling proposition from its inception in the customer's mind throughout its development and final consummation as a sale.

The distinct forms of sales are illustrated with typical problems in selling at retail, wholesale, the marketing of specialties and problems in promotion. The student is familiarized with the essential features in the linking of sales and advertising campaigns in the creation and development of business backgrounds.

The ultimate aim of this course and of Course e15-16 is to fit the student to analyze market problems and to apply to them the proper principles and methods of advertising and selling.

Psychology e141-142—Psychology of advertising. Lectures, demonstrations and discussions. Credit II. Half course each half-year. 2 points each half-year. Either half may be taken separately. Professor Hollingworth

7.40-9.30 p.m., Wednesday, Room 407 Schermerhorn. Fee \$12 each half-year

The first term will be devoted to the problems of attracting favorable attention to the advertisement. Such factors as the following will be considered: Nature of perception and attention, value of intensity, size of space, use of white space, motion, contrast, preferred position, repetition, novelty, illustrations suggested action, the comic, color, atmosphere, instinct, and habits. The various mechanical and interest devices for holding attention will also be considered, such as complexity and unity of the layout, use of pointers, arrows, borders, etc., laws of reading, etc.

During the second term the problem of arousing interest and desire for the commodity will be studied. Such factors as the following will be considered: laws of association, memory, feeling, suggestion, reason, and desire; analysis of selling-points, analysis of prospective buyers, including individual, sex and class differences; experimental and practical methods of determining the value of advertisements; trade-marks, trade-names and slogans.

The material for the entire course is based upon the findings of experimental psychology and upon the results of actual campaigns.

#### Day Courses

Economics e9—The organization of business. Credit I. 3 points first half-year. Dr. Haig

2-3.15 p.m., Tuesday and Thursday, Room 507 Hamilton. Fee \$18

Open only to students who have had two years of college work or the equivalent

The aim of this course is to study the organization and characteristics of the different classes of modern business units, and to examine the machinery by means of which the productive efforts in different fields of business are brought into correlation. Specifically the course will deal with the individual, the partnership and the corporate forms of enterprise, with their internal structure, their advantages and disadvantages, with markets and methods of trading and selling, and, finally with measures of social regulation and control.

Prerequisite: Economics 3-4 (Columbia College) or the equivalent, Finance e 3-4.

**Economics** e10—Business finance. Credit I. 3 points second half-year. Dr. HAIG

2-3.15 p.m., Tuesday and Thursday, Room 507 Hamilton. Fee \$18 Open only to students who have had two years of college work or the equivalent

The general aim of this course is to show the methods of handling the financial aspects of modern business. Individual and corporate financiering, investment and speculation are the main topics that will be treated.

Prerequisite: Economics e9.

# Economics e165-166—Business statistics and statistical methods. Credit II. Half course each half-year. Dr. Watkins

5.30-6.30 p.m., Tuesday and Thursday, Room 502 Kent. Fee \$12 each half-year

Laboratory hour for practical work to be arranged

This course deals with methods of collecting, interpreting, and presenting statistical data, including averages, graphs, correlation, etc., with reference especially to business statistics. The student is encouraged to familiarize himself with the various statistical appliances and sources of information in the laboratory. The construction and use of price index numbers are fully considered, and attention is given to systems of business statistics, such as those of Brookmire and Babson. Prices, trade, wages, unemployment, work-accidents, and other topics in economic statistics are treated.

New students will be allowed to enter this course in the second half-year.

# **Economics** e183—Railway transportation. Credit II. Half course first half-year. Professor G. G. Huebner

4.10-5 p.m., Tuesday and Thursday, Room 615 Fayerweather. Fee \$12

A review of the growth of the railway network, present railway systems and railway consolidation; construction finance; railroad capitalization; an outline of the organization of the railway as a business enterprise; a description of freight, passenger and express services; the development of cooperation among railroads; railroad traffic and rates, including a discussion of the nature and source of traffic

rate-making practice and theory, rate structures and the movement of freight rates and fares; the public regulation of railways by the federal and state governments and courts. The term will close with a comparative review of railway transportation in the leading foreign countries.

**Economics** e184—Water transportation. Credit II. Half course second half-year. Professor G. G. HUEBNER

4.10-5 p.m., Tuesday and Thursday, Room 615 Fayerweather. Fee \$12

The measurement of vessels and traffic, and the classification of sailing vessels and steamships; ocean routes, including a discussion of the construction and commercial effects of the Panama Canal, and the making of Panama tolls; the Suez, Kiel, Amsterdam and Manchester Canals; the freight, passenger, mail and express services of ocean carriers; ocean conferences, agreements, pools, and railroad-steamship relationships; ocean rates and fares; government aid and regulation of ocean shipping; the causes of the decline of the American marine engaged in the foreign trade; ship subsidies at home and abroad; domestic transportation on the seaboards, Great Lakes, rivers, and inland canals.

Psychology e191–192—Psychology of advertising and selling. Credit II. Half course each half-year. Professor HOLLINGWORTH

4.10-5.50 p.m., Thursday, Room 401 Schermerhorn. Fee \$12 each half-year

Lectures, reading, reports and demonstrations. Illustrated by lantern slides and by current advertising material.

Application of psychological principles and experimental methods to the problems of appeal and response in advertising and selling. Analysis and evaluation of methods and devices on the basis of (1) the known facts of human nature; (2) detailed examination of actual advertising campaigns and their results; (3) the application of laboratory technique; and (4) comparative study of old and new methods of marketing.

### Economics e193-194—Business organization and administration.

Credit II. Half course each half-year. Dr. Stevens

4-6 p.m., Monday, Room 505 Journalism. Fee \$12 each half-year

Seminar and research course in the problems of business and industrial organization including incorporation; officers and functions; standing committees; line and staff organization; plant location and construction; purchasing and receiving; stores keeping and perpetual inventories; production department and production routine; payment of employees; credits and collections; sales organization; advertising departments; traffic and shipping; office organization; time systems; filing, indexing and record systems; graphic records; appliances and equipment; efficiency movement in business.

Economics e195-196—Markets and marketing. Credit II. Half course each half-year. Professor S. S. Huebner

2.10-3 p.m., Monday and Friday, Room 505 Journalism. Fee \$12 each half-year

A study of the distribution of staple commodities and securities through the exchanges and various other channels of trade. The course will include some study of brokerage, and of wholesale and retail distribution.

#### Finance

### Evening Courses

Finance e1-2—Corporation finance. 2 points each half-year. Dr. Stevens

7.40-9.30 p.m., Wednesday, Room 609 Journalism. Fee \$12 each half-year

This course will deal with the corporate form and its advantages; legal status of the corporation; promotion and organization; financial plan and issuing of securities; combinations and consolidations; payment for stock and the sale of securities; underwriting; the management of corporate income; determination of profits and distribution of surplus; general principles in the issue of evidences of debt; holding corporations; leases, readjustment of capital account: receiverships and reorganization.

Finance e3-4—Money and banking. Credit I, IV. 2 points each half-year. Professor Agger

7.40-9.30 p.m., Monday, Room 203 Hamilton. Fee \$12 each half-year

The object of this course is to give the student a knowledge of the evolution, history and theory of money and of banking. The first term's work will be centred about money and monetary problems, while that of the second term will concern itself more particularly with banking and banking problems. Emphasis in both cases will be put on the experience and needs of the United States.

Prerequisite: Economics e1-2.

Finance e9-10—Investments. 2 points each half-year. Mr. Lown-

7.40-9.30 p.m., Tuesday, Room 214 Hamilton. Fee \$12 each half-year

This course is a practical study of investment securities, beginning with the consideration of the output and destination of the great mass of stocks and bonds, the process of distribution, classification and description of the numerous types of securities, and fundamental differences in investments together with the elements of an investment.

The general facts about all classes of stocks and of bonds secured by mortgage such as railroad, industrial, utility, real estate, timber, irrigation, drainage, etc., are then given, followed by consideration of the unsecured obligations of various corporations along with government, state and municipal bonds.

In the second term attention is given to analysis of corporation reports from an investment viewpoint, including a study of working capital, capitalization, equities factor of safety, etc., together with an investment classification of various railroads and industrial companies.

Economics e11-12—Real estate. 2 points each half-year 7.40-9.30 p.m., Thursday, Room 214 Hamilton. Fee \$12 each half-year

A systematic discussion and study of the theory of realty values and of real estate management, investment, brokerage, and advertising.

#### Day Courses

Economics e161-162—Corporation finance. Credit II. Half course each half-year. Dr. Stevens

3.10-4 p.m., Monday and Wednesday, Room 511 Journalism. Fee \$12 each half-year

This course will deal with the development of the corporation; promotion and organization; basis of capitalization and the financial plan; the issue of securities; combinations and consolidations; methods of paying for stock; underwriting and the sale of securities; management of corporate income; determination of profits and depreciation; distribution of surplus; general principles in the issue of evidences of debt; holding corporations; leases; readjustment of capital account; receiverships and reorganizations.

### Economics e163—Principles of money and banking. Credit II. Half course first half-year. Professor Agger

4.10-5 p.m., Monday and Wednesday, Room 615 Fayerweather. Fee \$12

This course is concerned with a study of the fundamental principles underlying modern money and banking systems. It begins with a study of the evolution of money, and, in connection with the analysis of modern monetary systems, deals with the topic of the value of money and the collateral questions connected therewith. It treats of the requirements of a good money system and passes finally to the subject of banking.

### Economics e164—Banking organization and foreign exchange. Credit II. Half course second half-year. Professor Agger

4.10-5 p.m., Monday and Wednesday, Room 615 Fayerweather. Fee \$12

This course is a continuation of the previous course, but concerns itself more broadly with the organization of banks into a system, with the requirements of a good system and finally with actual present-day banking organization from this point of view.

# Economics e181-182—Personal insurance. Credit II. Half course each half-year. Professor S. S. Huebner

4.10-6 p.m., Friday, Room 510 Fayerweather. Fee \$12 each half-year

A detailed study of the principles underlying the insurance of persons and including an examination of the different kinds of insurance organizations; selection of lives; types of policies; methods of loading; reserves; surrender values; policy loans; office and field organizations; sickness and invalidity insurance; workmen's compensation; unemployment insurance, etc.

# **Economics** e185–186—Property insurance. Credit II. Half course each half-year. Professor S. S. Huebner

3.10-4 p.m., Monday and Friday, Room 603 Journalism. Fee \$12 each half-year

This course comprehends a study of fire, marine, fidelity, surety, title and credit insurance. It will include a study of the functions of each type of insurance, policy contracts and conditions; mortgage clause; contribution; coinsurance; reinsurance reserves; State regulation; underwriters' associations; fire prevention. etc.

### Contemporary Literature

Contemporary literature e1-2-Modern European literature. Lectures. 2 points each half-year. Dr. Brewster

3.10-4.50 p.m., Wednesday, Room 603 Journalism. Fee \$12 each half-year

During the first half-year this course will deal with contemporary European literature, studying especially the productions of recent English and Russian authors. The work will center upon the Russian school, considering in some detail the attitude toward life and art of the typical Russian novelists, Tolstoy, Dostoievsky, Turgueniev and minor writers. The course will continue during the second semester if there is a sufficient demand for it, and will include the study of recent French, Italian, and German literature.

For other courses in contemporary literature, see p. 56

#### Drawing

Drawing eW1—Elementary freehand drawing. Six hours' drafting per week. 3 points first half-year. Mr. Beans

7-10 p.m., Wednesday; 2-5 p.m., Saturday, Room 601 Engineering. Fee \$18

Repeated in second half-year

Will consist of practice in the elements of freehand perspective, and in drawing from casts or machine parts in outline, and in light and shade.

It is intended primarily for architectural and engineering students. The completion of this course will be accepted as satisfying the entrance requirement in drawing.

#### Education

Education eX1—Methods of using the dramatic instinct in education and recreation. Credit IV. 2 points. Mrs. A. MINNIE HERTS-HENIGER in charge

10-12 a.m., Saturday, Room 401 Kent.\* Fee \$12

This class begins Saturday, October 16

The following special lecturers will take part in conducting the course: Percival Chubb; Caroline Crawford; G. Stanley Hall; Katherine Jewell Everts; George Pierce Baker; Madalene Barnum; Mary Shaw; Jacob Heniger

This course will be credited for two points for matriculated students in the School of Practical Arts who have their major in Physical Education. The conditions of this credit may be obtained from the Director of Extension Teaching or from the Secretary of Teachers College.

This course is offered to meet the need of elementary and high school teachers, leaders of recreation centres, settlement workers and parents who wish to employ the dramatic method in educational and recreational activities.

The instruction will be of a practical nature, enabling the teacher to train the dramatic instinct of all normal children and young people toward purposeful play, developing vocabulary, improving diction and leading the student through constructive thought to creative action.

<sup>\*</sup>For seven sessions, beginning March 4, the class will meet in Room 110 Teachers College.

#### Engineering

Note.—With the exception of Civil engineering e1-2 these courses are intended solely for men already engaged in practical work. They do not correspond to day courses and no university credit is allowed for them. Students should note the prerequisites and are urged to confer with the instructor when in doubt as to the requirements. In connection with the courses in surveying attention is called to the complete practical courses given during the summer at Camp Columbia, Morris, Conn. These courses are open to properly qualified students who have fulfilled the necessary prerequisites. For information address the Secretary, Columbia University, New York.

#### Civil Engineering

Civil engineering e1-2—Theory of plane surveying. Equivalent to Course CE 2, required of all students in the college preparatory course preliminary to the graduate courses in Civil, Mining and Metallurgical Engineering. Credit I, V. 2 points each half-year. Professor Finch

7.30-9.10 p.m., Wednesday, Room 306 Engineering. Fee \$12 each half-year

First half-year—General principles of surveying and surveying instruments. Units and measurements. Errors and limits of precision. Tapes and measurement of distance. The vernier and level bubble. The wye and dumpy levels, theory of leveling, and rods. The compass, magnetic declination and variation, and local attraction. The engineer's transit, measurement of angles, azimuth and traversing. Latitude and departure, error of closure.

Second half-year—Surveys and computations: Land surveying, including farm, city and public land surveys, computation of coordinates and areas, parting off land, description, and relocation. Topographic surveying, transit and stadia method, theory and reduction of stadia measurements, the plane table and government work. Hydrographic, mine and construction surveys.

Prerequisite: Plane trigonometry (see Structural mechanics eX1-X2) or equivalent; also first half-year prerequisite for second half-year.

Text-book: Raymond's Plane Surveying.

Civil engineering e2a—Field problems in plane surveying. Professor Finch. A short course in field work arranged as a supplement to Course e1-2 and open only to those registered in e1-2

1.30-5, ten Saturday afternoons, and one evening, beginning March 11; meet in Room 407 Engineering. Fee \$9

Civil engineering eX1-X2—Theory of railroad surveying. Professor Finch

7.30-9.10 p.m., Monday, Room 306 Engineering. Fee \$12 each half-year

Railroad location in general. The relation of railroad surveys to the problem of railway location. The object of the reconnaissance, preliminary and final locations and outline of methods used. The permanent way. Field work: Simple curves. Compound curves. Reverse curves. Transition curves. Frogs and switches. Turnouts and cross-overs. Yard work. Realignment. Cross-sectioning. Office work: The profile. Computation of earthwork. The mass curve for the proper distribution of earthwork. Estimates of cost.

The classroom work will consist of lectures and illustrative problems. Students will be required to work out numerous practical examples in connection with the theoretical work.

Prerequisites: Plane surveying, trigonometry, algebra. Text-book: Allen's Curves and Earthwork, with Tables.

Civil engineering eX2a—Field problems in railroad surveying. Professor Finch. Similar to Course e2a arranged only for students in Course eX1-X2

1.30-5, ten Saturday afternoons, beginning March 11, Room 407 Engineering. Fee \$9

# Civil engineering eY1-Y2-Plain and reinforced concrete construction. Professor Finch

7.30-9.10 p.m., Thursday, Room 306 Engineering. Fee \$18 each half-year

First half-year—Historical, advantages, general definitions. Cement, manufacture, specifications, testing. The aggregate, proportions and strength of concrete. Mixing, depositing, forms. Flexure and design of plain beams. Reinforced beams. Rectangular and "T" beams in bending. Shear and diagonal tension. Slabs. Columns.

Second half-year—Theory, design and construction. Bearing power of soils, earth and water pressure and loads. Gravity and cantilever retaining walls. Counterfoot reservoir wall. Slab and buttress dam. Design of forms for same. Design of pipes and standpipe. Highway slab and girder bridges. Loft building, including foundations and typical beams and columns.

No text-book will be used for this course, but students will be furnished with pamphlets, notes and tables. The second term will be largely given over to actual design. The instructor will be present on evenings set for this work, from 7-10, in the drafting room, Room 404 Engineering. As a reference book on the work of the first term Hool's Reinforced Concrete Construction, Vol. I, and as a general reference Taylor and Thompson, Concrete Plain and Reinforced, are recommended.

Prerequisite: Structural mechanics eZ1 and Mechanical drafting e1-2 or equivalent; also first half-year prerequisite to second half-year.

# Civil engineering eY3—Fire resistive, structural design and equipment. 2 points first half-year. Mr. Perrine

7.30-9.10 p.m., Tuesday, Room 301 Engineering. Fee \$12

Relative fire resistive properties of materials of construction, i. e., natural stone, clay brick, sand-lime brick, terra-cottas, cements, lines, plasters, steel, cast iron, non-ferrous alloys, wood, glass, compositions, etc. Protection of steel frame buildings. Discussion of approved practice and of standard full-size tests and digest of results upon floors; partitions and enclosures of vertical openings; beam, girder and column protection; windows and doors. Slow burning construction. Existing buildings made fire resistant. Sprinkler systems and water supply. Fire alarm signalling systems, chemical extinguishers, fire-drills, the fire hazard, etc.

No text-book will be used in this course, but students will be supplied with tables, notes, pamphlets, etc., at a nominal charge.

Lectures will be illustrated in part by lantern slides and laboratory demonstrations.

### Civil engineering e75-76-Hydraulics. Professor Finch

7.30-9.10 p.m., Tuesday, Room 306 Engineering. Fee \$12 each half-year

Hydrostatics. Laws of hydraulics. Measurement of head pressure and flow. Gages. Manometers. Venturi meter. Current meter. Stream gaging by current meter, floats, etc. Flow through orifices. Weirs, use, construction and discharge. Flow and discharge of pipes. Compound pipes and branches. Flow in and discharge of open channels. Canal design. Graphical solution of hydraulic problems. Backwater. Elements of flow of compressible fluids.

Prerequisite: Structural mechanics eZ1 or equivalent.

Merriman's Hydraulics will be used as a reference book, but will be supplemented by lecture notes. Students will also be required to work out numerous practica examples.

### Electrical Engineering

Electrical engineering e1—Elements of electrical engineering. Lectures. 3 points first half-year. Mr. Hehre and assistant

7.30-9.10 p.m., Tuesday and Friday, Room 302 Engineering. Fee \$18

Designed to give the student a general knowledge of the principles of electricity and magnetism.

Prerequisites: Algebra, elementary chemistry and physics. Students should consult the instructor as to these prerequisites.

**Electrical engineering** e**2—Principles of direct-current machinery.** Lectures and laboratory. 3 points second half-year. Mr. Hehre and assistant

7.30-9.10 p.m., Tuesday and Friday, Room 302 Engineering. Fee \$18

Designed to give the student a knowledge of the construction and characteristics of direct-current generators and motors.

Prerequisite: Electrical engineering el.

NOTE.—A deposit of \$10 to cover possible breakage is required of students taking Electrical engineering e2.

Electrical engineering e3—Elements of alternating currents. Lectures. 3 points first half-year. Mr. Hehre and assistant

7.30-9.10 p.m. Monday and Thursday, Room 302 Engineering. Fee \$18

Designed to give the student a general knowledge of the principles of alternating currents.

Prerequisites: Electrical engineering e1 and e2 or equivalent. Students not having credit for e1 and e2 should consult with the instructor as to these prerequisites.

Electrical engineering e4—Principles of alternating current machinery. Lectures and laboratory. 3 points second half-year. Mr. Hehre and assistant

7.30-9.10 p.m., Monday and Thursday, Room 302 Engineering. Fee \$18

Designed to give the student a general knowledge of the construction and characteristics of alternating current machinery.

Prerequisite: Electrical engineering e3.

NOTE.—A deposit of \$10 to cover possible breakage is required of students taking Electrical engineering e4.

### Highway Engineering

Highway engineering e114—Bituminous materials, bituminous surfaces, and bituminous pavements. Credit II. Half course. Professor Blanchard, Mr. Drowne, Mr. Hubbard and Mr. Smith

7.30-10 p.m., Tuesday and Thursday, January 25 to March 16, 1916, Room 402 Engineering. Fee \$12

Equivalent to Highway engineering 103

This course is given evenings at the request of engineers and chemists connected with highway departments of states, counties and municipalities, highway contractors, and engineer-salesmen in the employ of companies manufacturing bituminous materials and machinery used in the construction and maintenance of bituminous surfaces and bituminous pavements.

The content of the course and the subjects to be presented by the several instructors follow:

Mr. Hubbard: Mining of oils and asphalts; methods of manufacturing oils, asphalt cements and water gas, coke oven and coal gas tars; demonstration lectures covering physical and chemical properties indicated by tests for evaporation, solubility in various solvents, distillation, consistency, ductility, flash and burning points, fixed carbon, paraffin, etc.; plant, laboratory and highway inspection of bituminous materials.

Mr. Drowne: Tests of broken stone, gravel and slag to determine their absorption, specific gravity, hardness, toughness, cementation value and resistance to abrasion; mechanical analysis of sand, broken stone, gravel and slag; methods of making void determinations; inspection of testing machines in the non-bituminous materials laboratory.

Mr. Smith: Sheet asphalt pavements; types of binder courses; sand gradings for wearing courses; manufacture of binder and wearing courses; methods of laying; plant and street inspection; stationary, semi-portable and portable plants; maintenance.

Professor Blanchard: Bituminous surfaces on gravel and broken stone roads, construction and maintenance; bituminous macadam and bituminous concrete pavements; types of aggregates of sand, gravel, broken stone or slag and combinations thereof; details of construction of wearing courses; machinery employed at plants and on highways, including distributors, stationary, semi-portable and portable mixing plants, rollers and other accessories; specifications for bituminous cements; maintenance; specifications for proprietary bituminous pavements.

### Graduate Courses in Highway Engineering

The following graduate courses in Highway Engineering are open under certain conditions to students in Extension Teaching. For descriptions of these courses see Highway Engineering 1915-1916 Announcement. For descriptions of the prerequisites see Schools of Mines, Engineering and Chemistry 1915-1916 Announcement. Credit II is allowed for the following courses each of which counts as a half course for the degree of A.M. The fee for each course is \$12.

Highway engineering 101—Economics and design of roads and pavements

Prerequisite: Civil engineering 21 or the equivalent thereof.

Highway engineering 102-Broken stone, gravel and other roads;

brick, stone block, wood block and cement concrete pavements

Prerequisite: Civil engineering 21 or the equivalent thereof.

**Highway engineering 103**—Bituminous surfaces and pavements Prerequisite: Civil engineering 21 or the equivalent thereof.

Highway engineering 104—Highway jurisprudence

Prerequisites: Civil engineering 21 and an elementary course in Contract law or the equivalent thereof.

Highway engineering 105—Highway bridges and culverts

Prerequisites: Civil engineering 21, 58, 61, 62, 85, 87, Mechanics 1 and 102 or the equivalent thereof.

Highway engineering 106-Management engineering

Prerequisite: Civil engineering 21 or the equivalent thereof.

Highway engineering 107—Mechanical appliances used in highway engineering

Prerequisite: Civil engineering 21 or the equivalent thereof.

Highway engineering 108—Non-bituminous road materials, laboratory course

Prerequisites: Civil engineering 21 and Physics 43 or the equivalent thereof.

Highway engineering 109-Planning of roads and road systems

Prerequisites: Civil engineering 2, 15s, 21, 51, 71s, Drafting 1, 2 or the equivalent thereof.

**Highway engineering 110**—Planning of streets and street systems

Prerequisite or parallel: Highway engineering 109 or the equivalent thereof.

Chemistry H199—Mining, manufacture and testing of bituminous materials

Prerequisite: Civil engineering 21 or the equivalent thereof.

**Chemistry H200**—Testing of bituminous materials, laboratory course Prerequisites: Chemistry 3 or 4 and H199.

Geology H215—Engineering geology

Prerequisites: Civil engineering 21 and Geology 18, or the equivalent thereof.

#### Mechanical Drafting

Drafting e1-2—Mechanical drafting.\* 6 hours lecture and draftingroom work per week. Credit Ic, V. 2 points each half-year. Professor HARRINGTON

7.20-10 p.m., Tuesday and Friday, Room 607 Engineering. Fee \$12 each half-year

This course presupposes a fair ability in freehand drawing, and is the equivalent of Drafting 1-2 given to college students looking forward to the new : dvanced course in engineering.

It should, if possible, be taken in conjunction with Drafting e3-4.

The topics covered will be: the use of instruments; geometrical drafting; lettering; orthographic projection; topographical drafting; elementary working drawings.

<sup>\*</sup>Students will be required to furnish their own drafting instruments and materials.

**Drafting e3-4—Descriptive geometry.** 2 hours lectures. Credit Ic, V. 2 points each half-year. Professor HARRINGTON

6.30-7.20 p.m., Tuesday and Friday, Room 306 Engineering. Fee \$12 each half-year

This course will cover elementary problems relating to the point, right line, and plane; generation and classification of lines and surfaces; tangent planes to surfaces of single and double curvature; intersection of surfaces by planes; development of single curved surfaces. If possible, this course should be taken in conjunction with Drafting el-2.

**Drafting e5—Graphics.\*** 1 hour lecture and 5 hours drafting-room work per week. 2 points first half-year. Professor HARRINGTON

7.20-10 p.m., Tuesday and Friday, Room 607 Engineering. Fee \$12

This course treats of the elements of shades and shadows and perspective. The solution of thirty-five problems in the shades and shadows of lines, planes and groups ot solids, including the niche and torus, gives a fair working knowledge of this subject, while a sufficient number of plates are given in perspective to illustrate in detail all of the principles involved.

Prerequisites: Elements of mechanical drafting and descriptive geometry.

Drafting e8—Specialized engineering drafting.\* 1 hour lecture and 5 hours drafting-room work per week. 2 points second half-year. Professor Harrington

7.20-10 p.m., Tuesday and Friday, Room 607 Engineering. Fee \$12

This course includes methods used in framing and detailing in structural work; mine timbering; detailed and assembled drawings of ore-cars and skips; working drawings; tracings, etc., according to the course selected by the student.

Prerequisite: Elements of mechanical drafting.

### Sanitary Engineering

Sanitary engineering eX1—The design and construction of sewers. Lectures. 2 points first half-year. Mr. Brown

7.30-9.10 p.m., Monday, Room 301 Engineering. Fee \$12

Separate and combined systems. Calculation of flow. Velocities and grades. Rainfall and run off. Infiltration of ground water. Methods of forecasting population. Volume of sewage. Sewer maps and plans. Interceptors. Overflows. Tide-gates. Siphons. Design of sewers Flush-tanks. Catch-basins. Manholes. House-connections. Outfalls.

Text and reference books: American Sewerage Practice. Vols. 1 and 2. Metcalf and Eddy.

Sanitary engineering eX2—Sewage treatment. Lectures. 2 points second half-year. Mr. Brown

7.30-9.10 p.m., Monday, Room 301 Engineering. Fee \$12

Screening. Sedimentation by gravity and by chemical precipitation. Continuous flow tanks. Contact beds. Percolating or trickling filters. Sterilization. Intermittent application to soil with underdrainage. Disposal of sludge. Plants for sewage treatment, Pollution of streams.

Text and reference books: American Sewerage Practice. Vol. 3. Metcalf and Eddy; Sewage Disposal, Fuller.

<sup>\*</sup>Students will be required to furnish their own drafting instruments and materials.

Sanitary engineering eY2—Sanitary design. Lectures. 2 points second half-year. Mr. WALKER

7.30-9.10 p.m., Thursday, Room 301 Engineering. Fee \$12

Discussion of the problems of sewage treatment and water purification. Detailed design of typical sewage treatment works, including sewers, grit chambers, pumping stations, Imhoff tanks, sludge drying beds, sprinkling filters, sand filters, contact beds, disinfection. Practical operation of sewage treatment works. Design of water filtration plants. Slow sand filters. Rapid sand filters.

#### Structural Mechanics

NOTE.—Courses eX1-X2, eZ1, eZ2, eZ3-Z4, are intended solely for men who are engaged in practical work. They do not correspond to day courses and no university credit is allowed for them. For specific courses in architecture, especially in building materials, see page 23 following.

Structural mechanics eX1-X2—Elements and applications of algebra, geometry and trigonometry. 2 points each half-year. Mr. CLARK

6.10-7 p.m., Monday and Thursday, Room 408 Avery. Fee \$12 each half-year

The introductory work of this course will consist of a drill in the principles and applications of elementary algebra through quadratics. This will be followed by a brief treatment of a few of the most fundamental propositions of geometry. The last part of the course will be devoted to plane trigonometry and its applications to problems of a purely practical nature, and will include drill in the use of logarithms and the slide rule.

Structural mechanics eZ1—Elements of coplanar statics. 3 points first half-year. Professor Burnside

6.10-7 p.m., Tuesday and Thursday, Room 613 Fayerweather. Fee \$18

Algebraic and graphic methods are used in parallel; composition and resolution of forces; principles of equilibrium; determination of stresses in simple jointed frames, such as trusses and cranes; centres of gravity and centroids.

Prerequisite: Course eX1-X2, or its equivalent.

Text-book: Maurer's Technical Mechanics, third edition.

Structural mechanics eZ2—Elements of mechanics of materials.
3 points second half-year. Professor Burnside

6.10-7 p.m., Tuesday and Thursday, Room 613 Fayerweather. Fee \$18

Continuation of Course eZ1. Moments of inertia and radii of gyration of plane areas, built up beam and column sections; direct tension, compression and shear; strengths of beams, columns and riveted joints; deflection of beams.

Prerequisite: Course eZ1.

Text-book: Merriman's Mechanics of Materials.

Structural mechanics eZ3-Z4—Designs and details of framed structures. 4 points each half-year. Professor Schroeder

7-9.30 p.m., Monday and Thursday, Room 601 Engineering. Fee \$24 each half-year

Continuation of Course eZ2. Complete designs, including the designing of the details, with general drawings of the same, and estimates of costs, will be made for a wooden roof truss, a steel truss, and a plate girder railway bridge. Fixed and moving loads will be considered in connection with bridge stresses. Parts of other structures will be designed and analyzed to illustrate the applications of the fundamentals in the theory, such as column details, riveted connections eccentrically loaded, pin-plates, and pins.

A special feature of the course is that all of the study, calculations and execution necessary for each complete design will be done in the drafting-room under the

direction of the instructor.

Essentially all of the information required by the student relative to the solution of each design will be given in notes prepared by the instructor. The notes will be used as a text; they illustrate the calculations for, and lay-outs of, structures similar to those assigned as problems and will be supplemented by occasional lectures.

Prerequisites; Mechanical drafting e1-2, Structural mechanics eZ1 and eZ2 or their equivalents.

### English

#### Collegiate Courses

English eA1-A2—English composition. Lectures, themes and conferences. Credit I, IV. 3 points each half-year. Fee \$18 each half-year Section 1—7-8.15 p.m., Monday and Thursday, Room 610 Philosophy. Dr. Wolff

Section 2-7-8.15 p.m., Tuesday and Friday, Room 614 Kent. Mr. HALLER

Section 3—3.10-4.25 p.m., Tuesday and Friday, Room 605 Journalism. Dr. Taylor

Section 4—3.10-4.25 p.m., Monday and Thursday, Room 605 Journalism. Dr. Brewster

This course corresponds to English A in Columbia College. Students are expected to confer regularly with the instructor at times to be appointed within the conference period immediately following each class.

English eA3-A4—English composition. Lectures, themes and conferences. Credit I, IV, if taken both half-years. 1½ points each half-year. Dr. Wolff

9-10.15 a.m., Saturday, Room 611 Journalism. Fee \$9 each half-year

This course is equivalent to one half of English A. It is offered for teachers and students who desire to gain a knowledge of the principles of rhetoric and English composition as they are now taught in the colleges.

Two one-page themes or one three-page theme a week will be called for. Stu dents are expected to confer regularly with the instructor at times to be appointed within the conference period, 10.15-10.45. No other engagement should be made for this half-hour.

English eA8—English composition. Lectures, themes and conferences. Credit I, IV. 3 points second half-year. Mr. CLARK

8.20-9.35 p.m., Monday and Thursday, Room 707 Journalism. Fee \$18 Course eA1 given in the second half-year for students beginning at that time. English eA9—English composition. Lectures, themes and conferences. Credit I, IV. 3 points first half-year. Mr. CLARK

8.20-9.35 p.m., Monday and Thursday, Room 707 Journalism. Fee \$18 Course eA2 given in the first half-year for students who have already had eA1 or eA8 or the equivalent.

English eB1-B2—English literature and composition. Lectures, themes and conferences. Credit I, IV. 2 points each half-year. Dr. WOLFF 8.45-9.35 p.m., Monday and Thursday, Room 302 Philosophy. Fee \$12 each half-year

This course corresponds to English B in Columbia College. It consists in part of the careful and appreciative study of portions of the works of Chaucer, Spenser. Milton, Pope and Wordsworth.

English e1a-2a—English composition. Advanced course. Lectures, themes, and theme criticism. Credit I, IV. 1½ points each half-year. Dr. Wolff

11-12.15 a.m., Saturday, Room 709 Journalism. Fee \$9 each half-year Open to students who have passed English A with high standing or to special students of maturity. This course presumes a knowledge of formal rhetoric and training in the essentials of composition, correctness and precision. From two to four pages of manuscript (250-500 words) are required each week.

English e1b-2b—The short story. English composition. Theory of fiction writing. 3 points each half-year. Fee \$18 each half-year

Section 1—9.30-10.45 a.m., Saturday, Room 712 Journalism. Dr. Blanche Williams

Section 2—8.20-9.35 p.m., Monday, Room 605 Journalism. Mr. Brian Hooker

In this course story writing is studied from the point of the literary critic and also as far as possible from that of the writer. Details of construction will be investigated and the student called upon to contrive plots, depict characters and incidents and to write at least five short stories during the year. No special previous training is required, but those wishing to enter the course are required to submit during the first week a story or sketch of not more than 5,000 words as evidence of competency.

English e1c-2c—The short story. Advanced course. 4 points each half-year. Dr. Blanche Williams

11 a.m.-12.15 p.m., Saturday, Room 611 Journalism. Fee \$24 each half-year

This course is open only to the following students: those who have done promising work in Course 1b-2b; those who have not completed Course 1b-2b but submit at the outset a story of evident merit; and those graduate students specializing in English composition who wish advanced training in theory and criticism.

English e3a-4a—Dramatic composition. 3 points each half-year. Fee \$18 each half-year. Mr. Hughes

Section 1—11.10–12.25, Saturday, Room 609 Journalism Section 2—8.20–9.35 p.m., Friday, Room 609 Journalism

This course is designed for students desiring to write plays. In the beginning of the course each student will be required to submit the scenario of a play to be written during the year. These scenarios will be critized with reference to their suitability for the stage; and the manuscripts prepared for them will be analyzed from the point of view of the dramatist. Specific technical problems will be discussed in class as they come up in the course of the work. Representative recent and current plays will be taken up and analyzed with a view to ascertaining the principles underlying their construction and the causes of their success or failure Constant practice in plot construction and the preparation of scenarios will be given. In so far as possible the work of the course will be adapted to meet the specific requirements of the individual students.

English e11a-12a—Public speaking. Credit I, IV. 2 points each half-year. Fee \$12 each half-year

Section 1—7.40-9.30 p.m., Wednesday, Room 612 Journalism. Mr. Pearce

Section 2—7.40–9.30 p.m., Thursday, Room 612 Journalism. Mr. HALLIDAY

This course will deal with public address. Its aim is to give practical training to men and women of whom speaking is demanded in their profession. The first hour will be given to the delivering of prepared speeches, the second to special training before the class.

English e15-16—English versification. Technic of English poetry. Credit I, IV. 2 points each half-year. Mr. Brian Hooker

2.10-3.50 p.m., Tuesday, Room 707 Journalism. Fee \$12 each half-year This course, intended not only for those who wish themselves to experiment with verse forms, but also for those who desire to arrive at a richer appreciation of poetry, will consist of lectures and exercises in metrical composition. Illustrations will, for the most part, be drawn from the great poets, but contemporary writers will by no means be neglected. This course will be especially valuable to teachers of English.

English e17-18—Modern literature, English and foreign. Credit I, IV. 2 points each half-year. Professor Steeves

7.25-8.15 p.m., Monday and Thursday, Room 605 Journalism. Fee \$12 each half-year

This course is a general survey of the principal current literary types, tracing their characteristics from the influences prevalent in the Victorian period and giving attention to foreign artistic sources and parallels. The course requires extended and rapid outside reading of a weekly average of possibly three hundred or four hundred pages. The required reading can generally be found in the branch libraries of the New York Public Library.

English e19-20—The history of American literature. Credit I, IV. 2 points each half-year. Professor Van Doren

9-10.40 a.m., Saturday, Room 709 Journalism. Fee \$12 each half-year

The course furnishes an account of literary production in America from the beginning to the present day. Special attention is given to literary movements in their relation to the political and social background. Assigned readings in important authors will supplement lectures and recitations.

English e21-22—English literature from 1780-1830. Credit I, IV. 2 points each half-year. Professor Patterson

7.30-9.10 p.m., Wednesday, Room 512 Journalism. Fee \$12 each half-

year

This course will deal with English romanticism beginning with Cowper. After tracing the first signs of revolt against eighteenth century thought and ideals, it will treat of the new spirit as it expressed itself in the works of the poets and prose writers of the early part of the nineteenth century. While the course will include the work of men not especially well known, it will aim to embrace in considerable detail the poetry of Wordsworth, Shelley, Keats, and Byron. The work will be conducted by means of assigned readings and discussions.

English e23-24—English literature from 1830-1890. Credit I, IV. 2 points each half-year. Professor Tucker

4.10-5.50 p.m., Monday, Room 408 Avery. Fee \$12 each half-year

The work of this course deals exclusively with Tennyson in the first half-year and with Browning in the second. The object is to give the student an understanding and appreciation of the work of the two greatest poets of the Victorian era. To this end, a definite outline of reading and study is followed, and many poems are carefully discussed in class. Larger questions, such as those pertaining to the poet's relation to his period, the significance and value of his ideas, the distinctive qualities of his art, etc., are answered only by final deductions from the poems actually read. Since Tennyson and Browning are such large and significant figures, the course is of necessity fairly broad and inclusive.

English e35a-36a—Shakespeare. Credit I, IV. 2 points each halfyear. Professor Tassin

4.10-5.50 p.m., Thursday, Room 603 Journalism. Fee \$12 each half-year

An introduction to the study of Shakespeare, the condition and character of his life and work and the technic of his plays studied from the dramatic rather than from the literary point of view.

English e39-40—The development of the English novel. 2 points each half-year. Dr. Brewster

11-12.40 a.m., Saturday, Room 511 Journalism. Fee \$12 each half-year

The course will trace the development of the English novel from the work of Samuel Richardson to that of Thomas Hardy, in relation to other literary movements and to the social and political background. If possible the recent work of leading contemporary novelists will be considered. The lectures will be supplemented by assigned reading, reports, and discussions.

English e41a-42a—Contemporary dramatic literature. 2 points each half-year. Mr. CLAYTON HAMILTON

10-11.40 a.m., Saturday, Room 612 Journalism. Fee \$12 each half-year

In this course study is made of representative works of the leading modern dramatists from Victor Hugo to Sir Arthur Pinero. Special attention is devoted to the evolution of contemporary stagecraft. The best new plays presented during the current theatre season in New York are also analyzed from the point of view of the dramatic critic. The course is especially helpful to students who desire subsequently to write plays or to write dramatic criticism; it brings the actual theatre of to-day within the reach of academic study.

For a course in contemporary literature see page 45.

English e81-82—Survey of English literature from the Anglo-Saxon period to the present time. Credit I, IV. 2 points each half-year for students who have already taken English A and B. Professors TRENT, FLETCHER, THORNDIKE and AVRES.

11-12.40 a.m., Saturday, Room 713 Journalism. Fee \$12 each half-year

This course provides a general review of the entire history of English literature, such as may be serviceable to various classes of students who already have some familiarity with that literature. The lectures will supply bibliographical and critical suggestions for further reading and study. Students taking the course for credit must complete the assigned reading and pass the examination.

### Preparatory Courses

English eV1-V2—English for foreigners. 2 points each half-year. Fee \$12 each half-year. Dr. S. W. PATTERSON

Section 1—4-4.50 p.m., Wednesday and Friday, Room 609 Journalism Section 2—5-5.50 p.m., Wednesday and Friday, Room 709 Journalism

This course is designed to give foreigners such a training as will enable them to pursue with advantage the more advanced courses in English. Section 2 is planned especially for Chinese and Japanese students. By means of reading and conversation it aims to give students a correct pronuciation and to familiarize them with English idiom. While correct oral expression will be regarded as important, emphasis will also be placed on correct written expression. To this end the more elementary principles of English grammar will be studied, and short compositions on simple subjects will be required regularly.

English eW1-W2—English grammar and composition. 3 points each half-year. Fee \$18 each half-year. Mr. Duncan 7-8.15 p.m., Monday and Thursday, Room 609 Journalism.

This course is intended for mature students who desire to acquire a thorough knowledge of the elementary principles of English grammar. After a rapid review of the parts of speech and their modifications, a detailed treatment of word elements, phrase elements and clause elements and their relations in sentences will be given. Much time will be devoted to the analysis and synthesis of different types of sentences. Punctuation will be regarded as a system of points to denote grammatical relations, and thus considerable attention will be given this subject. One-page compositions on subjects drawn from life and from the experience of the students

regularly with the instructor at such times as he may designate.

Students who contemplate taking College Entrance English, either English eX1-X2 or eY1-Y2, should have completed this course or its equivalent.

will be required regularly. This course is recognized as a credit course for promotion licenses by the Board of Education. Students will be expected to confer

English esW1—English grammar and composition. Summer Session evening class. July 6-August 13. 2 points. Fee \$12. Mr. Duncan Section 1—4-4.50 p.m., Room 609 Journalism Section 2—7.30-8.20 p.m., Room 609 Journalism

English eW4—English grammar. Course eW1 repeated in the second half-year. 3 points second half-year. Mr. Duncan

8.20-9.35 p.m., Monday and Thursday, Room 609 Journalism. Fee \$18

English eW5—English composition. Course eW2 repeated in the first half-year. 3 points first half-year. Mr. Duncan

8.20-9.35 p.m., Monday and Thursday, Room 609 Journalism. Fee \$18

English eX1-X2—College entrance English. Composition and reading. Themes, conferences, reading of texts, tests, lectures, special oral reports, discussions. 3 points each half-year. Mr. Duncan

3.10-4.25 p.m., Monday and Thursday, Room 612 Journalism. Fee \$18 each half-year

Designed to aid in preparing for English a and b, as required for admission to College. During the first half-year the literature read will be plays and novels; during the second half-year poems and essays. In connection with the reading of literary masterpieces, special attention will be paid to the problem of how to read and to the work of composition planning. The course is, therefore, also suited to the needs of mature persons who, while not desirous of obtaining credit for entrance to College, desire guidance in reading, writing, and speaking. The successful completion of this course will count toward the removal of entrance conditions in English. Students will be expected to confer regularly with the instructor at such times as he may designate.

Students who register in this course should have completed eW1-W2 or its equivalent.

English esX1—College entrance English. Summer Session evening class. July 6-August 13. 2 points. Dr. S. W. PATTERSON 7.30-8.30 p.m., Room 612 Journalism. Fee \$12

English esX2—College entrance English. Summer Session evening class. July 6-August 13. 2 points. Dr. S. W. Patterson 8.30-9.30 p.m., Room 612 Journalism. Fee \$12

English eX4—College entrance English. Course eX1 repeated in the second half-year. 3 points each half-year. Dr. Gaston 7-8.15 p.m., Monday and Thursday, Room 603 Journalism. Fee \$18

English eX5—College entrance English. Course eX2 repeated in the first half-year. 3 points first half-year. Dr. Gaston

7-8.15 p.m., Monday and Thursday, Room 603 Journalism. Fee \$18

English eY1-Y2—College entrance English. Composition and study of texts. Themes, tests, lectures, discussions. 3 points each half-year. Fee \$18 each half-year. Mr. Duncan

Section 1—3.10-4.25 p.m., Tuesday and Friday, Room 612 Journalism Section 2—7-9.30 p.m., Tuesday, Room 609 Journalism

This course is designed to aid in preparing for English b, as required for admission to College. The work will consist of a detailed study of the books in the study list,

a thorough review of English literature, and the writing of many themes. Students will be called upon to do much written work in exposition in preparation for each lesson. The successful completion of this course will count toward the removal of entrance conditions in English. Students will be expected to confer regularly with the instructor at such times as he may designate.

Students already registered in this course who show obvious inability to carry the work will be transferred to Course eX1-X2.

Prerequisite: English eX1-X2 or its equivalent (the third year of high school course).

English esY—College entrance English. Summer Session evening class. July 6-August 13. 3 points. Mr. Duncan 6-7.20 p.m., Room 612 Journalism. Fee \$18

English eY4—College entrance English. Course eY1 repeated in the second half-year. 3 points second half-year. Mr. Duncan 6-8.30 p.m., Wednesday, Room 605 Journalism. Fee \$18

English eY5—College entrance English. Course eY2 given in the first half-year. 3 points first half-year. Mr. Duncan 6-8.30 p.m., Wednesday, Room 605 Journalism. Fee \$18

English eZ1-Z2—English spelling. 1 point each half-year. Mr. Duncan

5--5.50 p.m., Wednesday and Friday, Room 609 Journalism. Fee \$6 each half-year

This course is designed for mature students who spell badly. An effort will be made to teach spelling through the threefold appeal to the eye, the ear, and the touch. While considerable time will be devoted to phonics, syllabication, and rules of orthography, much more time will be given to actual spelling. The aim will be to discover and correct the deficiencies of the individual student. Attention will be given to words in common use and words commonly misspelled rather than to unfamiliar and technical words. Each student will be required to keep an alphabetical list of all words he misspells.

# Commercial English—e1-2—Business English and commercial correspondence. 3 points each half-year. Mr. Duncan

7.30-9.20 p.m., Saturday, Room 511 Journalism. Fee \$18 each half-year

This course is intended for stenographers, private secretaries, and for those who wish to become proficient in effective business communication. The aim is to teach how to use words in such a way as to make people act. The principles of literary composition will be applied to commercial correspondence. Business situations will be analyzed, letters classified into type forms, and the requisites of each class will be exemplified by many models. The psychology of advertising and the sales letter will be analyzed, and principles derived from this analysis will be applied in actual practice. The course will be not merely theoretical, but practical. Every student will be required to write several letters each week, and no one who has not sufficient time for such written work should take this course.

Special consideration will be given to letters of application, letters of complaints, sales letters, follow-up letters and collection letters.

A prerequisite to this course is a knowledge of the principles of elementary English grammar.

English es1—Business English and commercial correspondence.

Summer Session evening class. July 6-August 13. 2 points. Mr. Duncan

8.30-9.30 p.m., Room 609 Journalism. Fee \$12

#### Fine Arts

Architecture e27—Ancient architecture. Credit I. 1 point first half-year if taken with one other course. Curator Bach

4.10-5 p.m., Monday, Room 407 Avery. Fee \$6

The ancient architecture of Egypt, Assyria, Persia, Greece, and Rome. Will not be given for less than ten students.

Architecture e28—Medieval architecture. Credit I. 1 point second half-year if taken with one other course. Curator Bach

4.10-5 p.m., Monday, Room 407 Avery. Fee \$6

Early Christian and Byzantine architecture; the Romanesque and Gothic styles in Italy, France, England, Germany, Spain, and the Netherlands; analytical and critical discussion of the historic development, characteristics and chief examples of the medieval styles.

Will not be given for less than ten students.

Architecture e29—Renaissance architecture. Credit I. 1 point first half-year if taken with one other course. Curator BACH

4-4.50 p.m., Friday, Room 407 Avery. Fee \$6

The architecture of the Renaissance in Italy and France. Analytical and critical discussion of historic development and great examples of architecture since 1420. Will not be given for less than ten students.

Architecture e30—Renaissance, modern and Oriental architecture. Credit I. 1 point second half-year if taken with one other course. Curator Bach

4-4.50 p.m., Friday, Room 407 Avery. Fee \$6

The architecture of the Renaissance in Germany, Spain, and the Low Countries; architecture of the 19th century in Europe; American architecture, modern and contemporary developments and tendencies; Moslem and Oriental architecture; analytical and critical discussion of historical development and great examples of architecture since 1420.

Will not be given for less than ten students.

Architecture e31-32—Ancient ornament. Credit I, V. 2 points each half-year. Curator Bach

6-6.50 p.m., Thursday, Room 407 Avery. Fee \$12 each half-year

General classifications; origins, primitive and savage ornament; the historic ornament of Egypt, Assyria, Persia, Greece and Rome, including Ægean, Cypriote, Phoenician and Etruscan ornament; the development of the styles, the common motives and patterns of both architectural ornament and the minor arts.

Will not be given for less than ten students.

Architecture e37—Medieval ornament. Credit I. 2 points first half-year. Curator BACH

6-6.50 p.m., Tuesday, Room 407 Avery. Fee \$12

The ornament of the early Christian, Byzantine, Romanesque and Gothic styles both in architecture and the minor arts; the development of styles, motives and patterns.

Will not be given for less than ten students.

Architecture e38—Modern ornament. Credit I, V. 2 points second half-year. Curator Bach

6-6.50 p.m., Tuesday, Room 407 Avery. Fee \$12

The ornament of the Renaissance in Italy, France, Germany, Spain, the Netherlands and England; American "Colonial" ornament; developments in the 19th century in Europe and America; modern phases and tendencies in ornament.

Will not be given for less than ten students.

Architecture e41-42—Decorative arts. Credit I, V. 2 points each half-year. Curator BACH

4.10 p.m., Thursday, Room 407 Avery. Fee \$12 each half-year

An analysis of the principles controlling decorative composition and a detailed treatment of the processes involved in the following arts: mosaic, mural painting, architectural sculpture, ceramics, stained glass, plaster, metal-work and wood-work. Will not be given for less than ten persons.

Architecture e91-92—The history of painting. Credit I, V. 2 points each half-year. Curator BACH

4.10 p.m., Tuesday, Room 407 Avery. Fee \$12 each half-year

Stylistic developments in painting with due regard for historical sequence and the manifestations of national, school, and institutional characteristics. The artist's point of view will be consistently emphasized and the materials and processes of production duly considered.

Will not be given for less than ten persons.

[Architecture e93-94—The history of sculpture. Credit I, V. 2 points each half-year. Curator BACH

A concise historical treatment of stylistic developments in the field of sculpture, in which national, school, and institutional influences, as well as the various types and processes of sculpture are adequately considered.

Not given in 1915-16; will be offered in 1916-1917.]

Fine arts e51a—Sculpture and the decorative arts. A study of the originals in the Metropolitan Museum of Art, including the Morgan and Altman collections. 2 points first half-year. Fee \$12. Dr. KRIEHN

Section 1—10-11.40 a.m., Saturday, Metropolitan Museum Section 2—2.30-4.10 p.m., Friday, Metropolitan Museum

This course, combined with Fine arts e52a, offers a year's systematic study of the most important art objects in the Metropolitan Museum. It is designed especially to teach the appreciation of sculpture and the decorative arts, and to outline briefly their history. Among the subjects treated, besides sculpture proper, will be ivories, enamels, ceramics, small bronzes, furniture, and other decorative arts. Full advantage will be taken of the J. P. Morgan collection, which is particularly rich in the decorative arts. Special attention will be devoted to the needs of teachers and university students, for whom Section 1 is designed. The course is accepted as a thirty-hour collegiate course by the Board of Education of New York City. Use will be made of the important Museum library, with its collection of photographs and other reproductions.

Fine arts e52a—The paintings of the Metropolitan Museum of Art. A study of the originals in the Museum, including the Morgan and Altman collections. 2 points second half-year. Fee \$12. Dr. KRIEHN

Section 1—10-11.40 a.m., Saturday, Metropolitan Museum Section 2—2.30-4.10 p.m., Friday, Metropolitan Museum

Planned for all who wish to learn how to judge and enjoy painting. A continuation of the preceding course, but may be taken independently. While especial attention will be given to the technical qualities of painting, its meaning will not be neglected. Each session will be devoted to a school or to individual masters of painting; but the treatment will be in historic sequence, thus affording an outline of the history of painting. Among the topics treated are Italian painting, both primitive and developed; the early Netherlandish and German schools; Flemish and Spanish masters; Dutch painting, with special emphasis on Rembrandt (Altman Collection); the old English masters (Morgan Collection); French painting of the eighteenth and nineteenth centuries, with emphasis on the Barbizon school (Vanderbilt Collection); Modern European painting; American painting, both early and contemporary. Students, teachers, and others wishing to take the examination should enroll, if possible, in Section I, which is especially designed for them.

[Fine arts e101-102—History of art, ancient and medieval. Credit II. 2 points each half-year. Professor Hamlin Not given in 1915-16]

Fine arts e103-104—History of art, Renaissance and modern. Credit II. Half course each half-year. Professor Hamlin

3.10 p.m., Tuesday and Thursday, Room 408 Avery. Fee \$12 each half-year

Architecture, painting and sculpture of the Italian Renaissance; the Renaissance in France, Germany, the Netherlands and England; modern schools and developments; American art.

### Geography

Geography e25-26—Physical geography and its human relationship. Lectures, laboratory and field excursions. Credit I, IV. 3 points each half-year. Miss HATCH

4.10-6 p.m., Tuesday and Friday, Room 401 Schermerhorn. Fee \$18 each half-year

In the first half-year this course considers the physical geography of the lands. It deals primarily with the causes and evolution of the various land forms of the

earth's surface, but in every case shows the human or economic aspect of these forms. The chief topics considered are: The work of rivers, glaciers, waves, and winds, in shaping the surface of the earth; forms due to vulcanism and to the folding and faulting of the earth's crust; the study of land forms in various stages of erosion, with the aid of topographic maps and other methods of illustration, including occasional field trips into neighboring parts of New York and New Jersey; the effects of land forms, and particularly of the stages of erosion, on distribution of population, methods of transportation, development of water power, agriculture, and customs of peoples.

In the second half-year a study of the physical geography of the atmosphere and of the ocean is made. The first part of this course deals with the earth as a globe, its size, shape, and relation to other heavenly bodies; latitude, longitude, and time; methods of map projection; rotation and revolution of the earth and their consequences, and terrestrial magnetism.

The major emphasis is laid upon the atmosphere and ocean. Under the former are considered the constitution, temperatures, and pressures of the atmosphere; prevailing winds and the distribution of rainfall; the making of weather maps; climatic provinces; the theory of climatic oscillations and the migration of peoples; The ocean will be considered in detail and will include such topics as the composition and temperatures of sea water; ocean currents and their effects on navigation, climate, and the distribution of food fishes; tides and their influence on harbors, navigation and sewage disposal; the effects of marine agents on shores and harbors.

### Geology

Geology e1—General geology. A general introduction to the subject of geology. Credit I, IV. 3 points first half-year. Dr. Reeds

8.20-9.35 p.m., Tuesday and Friday, Room 401 Schermerhorn. Fee \$18

This course covers an introduction to the common rocks, their structure, origin, and occurrence in nature; weathering of rocks and its products, geological activities of the air, the streams and the sea; characteristics and work of glaciers, volcanoes and earthquakes.

The laboratory work consists of a study and identification of common rocks, drawing of structure sections, interpretation of topographical maps, etc. There will be several field trips on Saturday afternoons.

No prerequisite. Equivalent to Geology 1 in Columbia College. A knowledge of elementary chemistry is desirable.

Text-book: Chamberlin and Salisbury, College Geology.

Geology e2—Historical geology. The origin of the earth and its development—succession of plant and animal life. Credit I, IV. 3 points second half-year. Dr. Reeds

8.20-9.35 p.m., Tuesday and Friday, Room 401 Schermerhorn. Fee \$18

This course deals with the origin of continents and ocean basins and their development during successive geologic periods, characteristic sections and their interpretations, study of important types of fossils as indication of geologic age; the glacial period and the antiquity of man; development of surface features or physiography.

The laboratory work consists of the study of maps, sections and fossils, followed by work with physiographic models. There will be several excursions on Saturday afternoons in the spring.

Prerequisite: Geology 1 or Geology e1 or s1.

Text-book: Chamberlin and Salisbury, College Geology; Grabau, Syllabus of Historical Geology.

#### German

German eA1-A2—Elementary course. Credit I, IV. 3 points each half-year. Fee \$18 each half-year

Section 1—4.30-5.45 p.m., Tuesday and Friday, Room 307 Philosophy. Mr. Eyster

Section 2—8.35-9.50 p.m., Monday and Thursday, Room 611 Journal ism. Mr. Werner

Section 3—7-8.15 p.m., Tuesday and Friday, Room 512 Journal ism. Mr. Winfrey

This course familiarizes the beginner with the common vocabulary and the fundamental grammatical facts of the language so as to enable him to read easy German at sight. Reading forms part of the work from the beginning, together with grammar study, easy exercises in composition, and a considerable amount of colloquial practice in the phrases of everyday life. Although this course is intended for beginners it may be taken with profit by those who have some previous knowledge of the language but are deficient in grammar. Students entering in February should take Course eA8. For Course eA1 no previous knowledge of German is required.

. The entire course completes the college entrance requirement in elementary German.

German eA3-A4—Elementary course. Equivalent to course eA1 Credit I, IV. 1½ points each half-year. Mr. BACH

10-11.15 a.m., Saturday, Room 405 Avery. Fee \$9 each half-year

This course, continuing throughout the year, is equivalent to Course eA1. The student may complete the requirement in elementary German for college entrance or for a degree by taking eA2, eA5-A6, or (if specially proficient in eA3-A4) sA3 Prerequisite to eA4: eA3 or sA1. For Course eA3 no previous knowledge of

German eA5-A6-Elementary course. Equivalent to course eA2. Credit I, IV. 1½ points each half-year. Mr. BACH

11.30-12.45, Saturday, Room 405 Avery. Fee \$9 each half-year

Prerequisite, eA1, eA3-A4 or sA1 and sA2.

German is required.

This course, continuing throughout the year, is equivalent to Course eA2.

German eA8—Elementary course. Credit I, IV. 3 points second half-year. Fee \$18

Section 1—4.30-5.45 p.m., Tuesday and Friday, Room 603 Journalism. Mr. REICHLING

Section 2—7-8.15 p.m., Monday and Thursday, Room 408 Hamilton. Mr. Winfrey

Equivalent to eA1 of the first half-year (for description see above); followed by eA9 (equivalent to eA2), given the first half-year.

German eA9—Elementary course. Credit I, IV. 3 points first halfyear. Fee \$18

Section 1—4.30-5.45 p.m., Tuesday and Friday, Room 603 Journalism. Mr. REICHLING

Section 2-7-8.15 p.m., Monday and Thursday, Room 408 Hamilton. Mr. Winfrey

Follows eA8; equivalent to eA2 of the second half-year (for description see above).

German eB1-B2—Intermediate course. Credit I, IV. 3 points each half-year. Fee \$18 each half-year

Section 1—4.30-5.45 p.m., Tuesday and Friday, Room 611 Journalism. Dr. Porterfield

Section 2-7-8.15 p.m., Monday and Thursday, Room 402 Hamilton. Mr. Werner

This course is intended for students who have satisfied the college entrance requirement in elementary German or have taken Course eA1-A2 or an equivalent. Course eB2 completes the requirement in intermediate German for college entrance or for a degree.

The work of this course includes the reading (partly at sight) of about five hundred pages of moderately difficult prose and verse by standard modern and classical authors; grammatical instruction, beginning with a rapid review of the elements and embracing the fundamental principles of syntax and word-formation; exercises in composition and free reproduction, oral and written, with some colloquial practice. The texts studied will be selected with reference to variety of style and vocabulary and will include Freytag's Die Journalisten, Heine's Harreise, and Schiller's Wilhelm Tell.

Prerequisite: eA2, eA5-6, or sA3, or an equivalent.

Students will require at the beginning of this course Baumbach's Der Schwisgersohn, edited by Florer and Lauer (Allyn and Bacon), and Thomas, Practical German Grammar (Holt).

German eB3-B4—Shorter intermediate course. Credit I, IV. 2 points each half-year. Professor HAUCH

9-10.40 a.m., Saturday, Room 308 Philosophy. Fee \$12 each half-year
This course is equivalent in hours to two-thirds of eB1-B2 and includes the
more important work of the longer course, with a smaller amount of reading (about
350 pages) and of practice in writing and speaking. Students proficient in this
course are able to pass the college entrance examination in intermediate German.
If supplemented by Course e3-4 or s3-4 it will be accepted in satisfaction of the

intermediate requirement for admission or for a degree.

Prerequisite: as for Course eB1-B2.

German eB6—Intermediate course. Credit I, IV. 3 points second half-year. Mr. Reichling

4.30-5.45 p.m., Monday and Thursday, Room 611 Journalism. Fee \$18 Follows eA9; equivalent to eB1 of the first half-year (for description see above).

German eB7—Intermediate course. Credit I, IV. 3 points first half-year. Mr. REICHLING

4.30-5.45 p.m., Monday and Thursday, Room 611 Journalism. Fee \$18 Pollows eB6; equivalent to eB2 of the second half-year (for description see above).

German eE1-E2—Readings in science. Credit I. 3 points each half-year. Professor Schulze

7-8.15 p.m., Tuesday and Friday, Room 406 Hamilton. Fee \$18 each half-year

This course is designed to enable the student to read difficult German with facility in order that he may consult technical journals and works of reference in that language in connection with his later professional studies.

For students who intend to take the six-year Collegiate and Engineering Course. Equivalent to the prescribed course in Columbia College.

Prerequisite for eE1: eB2, eB7, or an equivalent; for eE2: eE1.

German eE4—Readings in science. Credit I. 3 points second halfyear. Mr. Gray

4.30-5.45 p.m., Tuesday and Friday, Room 512 Journalism. Fee \$18

Equivalent to eE1 of the first half-year (for description see above).

Prerequisite: as for eE1.

German eZ1—Practice in writing. Short course for graduate students; without credit. 2 points first half-year. Mr. HAUCH

4.10-6 p.m., Friday, Room 508 Philosophy. Fee \$12

This course will consist of a topical review of German inflections and syntax, with abundant practice in writing and hearing the language. It is intended only for graduate students who have a somewhat extensive reading knowledge, but are deficient in composition and the ability to understand spoken German.

German e3-4—Composition and oral practice. Intermediate course. Credit I, IV. 1½ points each half-year. Fee \$9 each half-year Section 1—11-12.15 a.m., Saturday, Room 308 Philosophy. Dr. Betz Section 2—8.30-9.45 p.m., Monday, Room 713 Journalism. Dr. Betz

This course aims to meet the demand for instruction looking toward a practical command of the German language. It is intended for students who possess an elementary reading knowledge (the equivalent of Course eA2 or eA9 or eA6), but previous practice in oral expression is not regarded as a prerequisite. The course may be taken with advantage by students who are taking, or have taken, Course eB1-B2 or eB3-B4.

From the outset simple German will be employed as far as possible by instructor and student alike. The subjects pursued and the methods employed will depend in large measure upon individual needs. The conversation will be based upon easy German narrative prose, short poems and, so far as may be practicable, upon daily life and current events, and will be supplemented with frequent dictation exercises. The composition work will consist of translations into German and of original themes upon subjects discussed in class.

German e5a-6a—Introduction to the classics. Selected works of Goethe, Schiller and Lessing. Credit I, IV. 2 points each half-year. Professor Hervey

4.20-6 p.m., Wednesday, Room 406 Hamilton. Fee \$12 each half-year

This course aims to make the student familiar with representative works of the classical period and the outlines of its history, and to increase the student's command of vocabulary and idiom by means of supplementary sight reading and by interpretation of the text without the medium of translation.

The course will include the reading and study of selected dramas of Lessing. Goethe and Schiller, with brief discussion of other works in connection with assigned private reading. As the course affords but little practice in speaking and writing German, it is recommended that Course e3-4 or e11-12 be taken in connection with it.

Prerequisite: eB2, eB4, eB7, or an equivalent.

Text-books required at the beginning. Lessing's Emilia Galotti, edited by Winkler (Heath); Rolleston's Life of Lessing, published in the "Great Writers" series (Walter Scott, London).

German e11-12—Composition and oral practice. Advanced course. Credit I, IV. 1½ points each half-year. Professor HAUCH

11-12.15 a.m., Saturday, Room 302 Philosophy. Fee \$9 each half-year Intended to continue the work of Course e3-4 or s3-4, but has at the same time a distinctly literary content. It presupposes a good reading knowledge and fair ability to understand the spoken language. This course will be conducted wholly in German. The conversation will be upon topics chosen from the field of literature, daily life and current events. The composition work will consist in the rendering of outlines of the literature read and in the preparation of original themes.

Students will require at the beginning of this course Buchheim, Balladen und

Romanien (Macmillan).

German e101-102—History of German literature. First half-year from 800 to 1500 A.D.; second half-year from 1500 to 1800 A.D. Credit II. Half course each half-year. Professor Braun

9-10.40 a.m., Saturday, Room 302 Philosophy. Fee \$12 each half-year The course consists of lectures, readings from Thomas's Anthology, and essays or reports on assigned topics. The lectures introduce the student to the more important writers and writings and aim to give a clear, though very general, idea of the character of epochs, and the growth and decay of literary tendencies.

German e103-104—Goethe's Faust. First and second parts. Credit II. Half course each half-year. Professor THOMAS

9-10.40 a.m., Saturday, Room 508 Philosophy. Fee \$12 each half-year

This course, intended for the enjoyment of Faust as poetry, consists of the reading and interpretation, by lecture and discussion, of the entire poem with a few unimportant omissions. Attention is given to its genesis and its significance in the study of Goethe's life and works, to its ethical import and artistic character as a whole.

Prerequisites: Course e5-6 or equivalent, and a reading knowledge of German. Students will require for this course Goethe, Faust. First and Second Parts 2 vols., edited by Calvin Thomas (Heath).

German e147-148—Deutsche Stilübungen und Wortstudien. Credit II. Half course each half-year. Professor Heuser

11 a.m.-12.40 p.m., Saturday, Room 508 Philosophy. Fee \$12 each half-year

Für Vorgeschrittene, besonders Lehrer, die sich im schriftlichen Gebrauch der deutschen Sprache vervollkommnen wollen. Kleine wöchentliche Aufsätze, über moderne deutsche Einrichtungen sollen den Besprechungen in der Klasse zu Grunde gelegt werden.

The attention of students in German is called to the classes in spoken languages, described in a special circular.

#### Greek

Greek e1—Elementary Greek. Credit I, IV, if followed by Greek e2. 3 points first half-year. Dr. Reiley

4.30-5.45 p.m., Tuesday and Friday, Room 311 Havemeyer. Fee \$18

This course is intended for students who wish to learn the elements of classical Greek. No previous knowledge of the language is required. The course will cover a careful study of the fundamental forms, idioms and grammatical principles

of Attic Greek prose. Reading will form part of the work from the beginning and there will be constant practice, both oral and written, in the translation of easy English into Greek.

Text-book: Benner and Smyth, Beginner's Greek Book.

The same as Greek 1 in Columbia College.

### Greek e2—Xenophon and sight translation. Credit I, IV. 3 points second half-year. Dr. Reiley

4.30-5.45 p.m., Tuesday and Friday, Room 311 Havemeyer. Fee \$18

This course consists of readings from Xenophon's Anabasis. It will also include constant practice in sight translation and some oral and written work in Greek prose composition.

Prerequisite: Greek el or its equivalent.

Text-book: Murray, Xenophon's Anabasis.

The same as Greek 2 in Columbia College.

### Greek e3—Homer. Credit I, IV. 3 points first half-year. Dr. REILEY 7-8.15 p.m., Monday and Thursday, Room 303 Hamilton. Fee \$18

This course will include the first three books of the Iliad with a study of their constructions, poetical forms, and prosody.

Prerequisite: Greek e2 or its equivalent.

The same as Greek 3 in Columbia College.

#### History

History eX1—American history. Texts, discussions, readings, notes, maps. 3 points first half-year. Mr. Hill

4.30-5.45 p.m., Tuesday and Friday, Room 306 Engineering. Fee \$18

This course aims to cover the requirements for college entrance and to give a brief survey of the essential facts of American history from the earliest discoveries to the present time. The study will give due emphasis to political, reritorial, commercial, industrial, and social development. The successful completion of this course will count toward the removal of entrance conditions in history.

History eX2—American history. Texts, discussions, readings, notes, maps. 3 points second half-year. Mr. Hill

11-12.15 a.m., Tuesday and Friday, Room 609 Journalism. Fee \$18 Course eX1 repeated in the second half-year.

History eX3—Ancient history. Texts, discussions, readings, notes, maps. 3 points first half-year. Mr. Hill

11-12.15 a.m., Tuesday and Friday, Room 609 Journalism. Fee \$18

This course aims to cover the requirements for college entrance and to give a brief survey of the essential facts of ancient history from the earliest times to the age of Charlemagne. The study will present the life of the peoples, their social and political development, and the growth and expansion of the nations of the ancient world. The successful completion of this course will count toward the removal of entrance conditions in history.

History eX4—Ancient history. Texts, discussions, readings, notes, maps. 3 points second half-year. Mr. Hill.

4.30-5.45 p.m., Tuesday and Friday, Room 306 Engineering. Fee \$18 Course eX3 repeated in the second half-year.

History eA1—The foundations of modern Europe. Lectures, readings, and discussions. Credit I, IV. 3 points first half-year. Fee \$18

Section 1—4.30-5.45 p.m., Monday and Thursday, Room 302 Engineering. Professor Kendrick

Section 2—8.20-9.35 p.m., Tuesday and Friday, Room 612 Journalism. Mr. Hill

After a brief survey of the contributions of the ancient world and of the middle age to European civilization, the course will deal with important political, economic and intellectual achievements from the fifteenth century to the eighteenth; the will treat of the spirit of reform and of revolt, the expansion of Europe, monarchy by divine right and the various aspects of the "old régime."

Texts: Hayes, Syllabus of Modern History; Robinson and Beard, Development of Modern Europe, 2 vols.

This course is equivalent to History A1 as given in Cclumbia College.

History eA2—Modern and contemporary history. Lectures, readings and discussions. Credit I, IV. 3 points second half-year. Fee \$18. Section 1—4.30-5.45 p.m., Monday and Thursday, Room 605 Journalism. Professor Kendrick

Section 2—8.20-9.35 p.m., Tuesday and Friday, Room 612 Journalism. Mr. Hill

This course is designed as an introduction to current national and international problems. The principal topics will be the intellectual achievements of the eighteenth century, the French Revolution with reference to political and economic changes, the work of Napoleon in reforming France and in reshaping the map of Europe, the industrial revolution, the development of Italian and German unity, the Third French Republic, the rise of Russia, modern social problems and imperialism in Africa and the Orient.

This course is equivalent to History A2 as given in Columbia College.

History eA9—The formation of the United States. Lectures, readings and discussions. Credit I, IV. 3 points first half-year. Mr. Fox 8.20-9.35 p.m., Monday and Thursday, Room 709 Journalism. Fee \$18

After a survey of the European background of American history and the establishment in the New World of European institutions of contrasted types attention is fixed upon the English settlements, their development, and their experience with the colonial system seeking to protect and control them, resulting finally in revolt, union, and the organization of the United States.

Syllabus: Schuyler, Syllabus of American History.

This course is equivalent to History A9 as given in Columbia College, and forms an introduction to the advanced study of early American history.

History eA10—The development of the American nationality. Lectures, readings and discussions. Credit I, IV. 3 points second half-year. Mr. Fox

8.20-9.35 p.m., Monday and Thursday, Room 709 Journalism. Fee \$18

Beginning with the triumph of Jeffersonian democracy, this course considers our foreign relations culminating in the War of 1812, and traces the influence of manufactures, the frontier and slavery upon the sentiment of nationalism. The Civil War is treated with emphasis upon its political and constitutional phases; followed by a survey of reconstruction in the southern states, after which attention is paid to the development of railroads, the conflicts of capital and labor, currency and the tariff, imperialism, and political readjustment to meet new social needs. Syllabus as for eA9.

This course is equivalent to History A10 as given in Columbia College, and forms an introduction to the advanced study of later American history.

History e11-12—The history of England. Lectures, readings and discussions. Credit I, IV. 2 points each half-year. Professor Schuyler 11-12.40 a.m., Saturday, Room 707 Journalism. Fee \$12 each half-year

A survey of English history from earliest times to the present. Deals with economic, social, intellectual and religious development as well as with political and constitutional progress.

**History** e19-20—**Contemporary events.** A laboratory course. Readings, reports, and discussion. Credit I. 2 points each half-year. Mr. Moon

3.10-4.50 p.m., Friday, Room 501 Journalism. Fee \$12 each half-year

This course offers an opportunity to study contemporary events in their historical setting, as well as a practical training in the use of home and foreign newspapers, periodicals, and other publications as sources of historical information. Such topics as the Mexican Civil War, the Chinese Republic under Yuan Shi-Kai, the South African Rebellion of 1914, and certain phases of the War of the Nations will be assigned for independent investigation and classroom discussion.

History e104—The political and social evolution of modern Turkey and Egypt. Lecture-study course. Credit for those taking both hours, II. Half course second half-year. Professor GOTTHEIL

4.10-5 p.m., lecture; 5-5.50 p.m., conference, Tuesday, Room 706 Philosophy. Fee \$12

This course will cover the history of the Ottoman Empire from the beginning of the nineteenth century to the present day, the reforms introduced since 1826, the constitutions of 1876 and 1908, the war in Tripoli, 1911-12, the Balkan War, 1912-13, the history of Egypt since Mohammed Ali and the results of the English occupation.

**History** e104a—Course e104 supplemented by assigned readings and reports. Credit II. Full course second half-year. Fee \$24

**History** e125-126—**History of the Slavonic nations.** Lecture-study course. Credit for those taking both hours, II. Half course each half-year. Professor PRINCE

4-4.50 p.m., lecture; 4.50-5.40 p.m., conference, Wednesday, Room 307 Philosophy. Fee \$12 each half-year

This course will deal especially with the historical and cultural evolution of the Slavonic nations from the pre-Christian period until modern times, with exposition of their daily life, customs, and folk songs.

History e145-146—Social and industrial history of the United States. Lecture-study course. Credit for those taking both hours, II. Half course each half-year. Mr. GAMBRILL

7.30-8.20 p.m., lecture; 8.20-9.10 p.m., conference, Thursday, Room 615 Kent. Fee \$12 each half-year

The course deals with such topics as the social origins and industrial and institutional beginnings of the American people; social and economic conditions and changes in connection with their emancipation from foreign control; territorial expansion, development of natural resources, geographical influences, effects of vast areas of cheap land; growth and distribution of population, immigration and intramigration, the long-continued and moving frontier; slavery and race problems; the Industrial Revolution, effects upon society of the advent of the age of invention machinery, and applied science; expansion of commerce, progress of agriculture, inter-relations of the great industries, growth of capitalism and industrial combination; labor movements and organization, efforts of the workers for advancement, beginnings of industrial democracy; new problems in education and social reform. The general purpose is to study historically the sources and evolution of the important social and industrial conditions and problems of to-day in the United States.

History e149-150—The French Revolution and the Napoleonic era. Lecture-study course. Credit II. Half course each half-year. Professor MUZZEY

11-12.40, Saturday, Room 615 Kent. Fee \$12 each half-year

The object of this course will be to study the French Revolution in its broad social, economic and religious aspects as well as in its dramatic political character. Particular stress will be laid on the conditions of eighteenth century France which led to the Revolution, and the features of the Revolution which permanently remedied those conditions. The constructive work, both of the men of 1789 and of Napoleon, will be emphasized more than the episodes of the Revolution.

History e163—Nationalism and democracy in Western Europe 1848–1870. Lecture-study course. For those taking both hours, Credit II. Half course first half-year. Professor HAYES

4.30-5.20 p.m., lecture; 5.20-6.10 p.m., conference, Monday, Room 612 Journalism. Fee \$12

Opens with an account of the chief political issues which resulted from the French Revolution and of the main social problems that the Industrial Revolution created. Treats the revolutionary movements of 1848-49, the subsequent gradual development of nationalism and democracy, and the political careers of Louis Napoleon, Bismarck, Disraeli, and Gladstone.

History e154—Social politics in Western Europe since 1870. Lecture-study course. For those taking both hours, Credit II. Half course second half-year. Professor HAYES

4.30-5.20 p.m., lecture; 5.20-6.10 p.m., conference, Monday, Room 612 Journalism. Fee \$12

Deals with such facts in the political and social history of the German Empire, the Third French Republic, and the United Kingdom since 1867, as may serve on the one hand to show the increasing adaptation of modern political institutions to social betterment, and, on the other hand, to offer some explanation of the present War of the Nations.

History e155—The origins of European society. Credit II. Half course first half-year. Professor Shotwell

7.30-8.20 p.m., lecture; 8.20-9.10 p.m., conference, Tuesday, Room 615 Kent. Fee \$12

A general view of the evolution of European society. Begins with survey of prehistoric man, the stone, bronze and early iron ages, rise of agriculture, ancient city states, commerce and slavery. Passes in review early German village life, feudalism, management of manorial estates, rise of European cities, emergence of capital and origins of national state.

History e166—Social and industrial history of modern England. Credit II. Half course second half-year. Professor Shotwell

7.30-8.20 p.m., lecture; 8.20-9.10 p.m., conference, Tuesday, Room 615 Kent. Fee \$12

Begins with short survey of commercial revolution which changed the centre of European society from the Mediterranean to the North. Treats of influx of gold and silver from America and the business aspects of modern politics, Industrial Revolution great inventions, rise of the factory system and industrial proletariat. Treats also the bearing of these forces upon politics and the adjustments of democracy and nationalism in the modern state.

History e177-178—Latin America. For those taking both hours, Credit II. Half course each half-year. Professor Shepherd

7.30-8.20 p.m., lecture; 8.20-9.10 p.m., conference, Monday, Room 615 Kent. Fee \$12 each half-year

Survey of the national development and international relations of the Latin-American countries, followed by an intensive study of social conditions, political and financial situation, geography and natural resources, industry, trade, and transportation. Recognition of the individuality of each republic, so far as may be needful to explain its position in the world at large; but especial consideration is given to the states of most importance. Primary object of the course: To supply the knowledge and to cultivate the attitude of mind which may enable Americans to understand the Latin Americans, appreciate their circumstances, work with them along the lines of material and intellectual progress, and contribute in general to the promotion of inter-American commerce and friendship.

History e177a-178a—Course e177-178 supplemented by assigned readings and reports. Credit II. Full course each half-year. Fee \$24

### Hygiene

Hygiene e1-2—Hygiene and sanitation. Credit I, IV. 3 points each half-year. Professor MEYLAN

5-6.15 p.m., Tuesday and Thursday, Room 604 Fayerweather. Fee \$18 each half-year

First half-year—Health and disease in terms of general biology. Preventive medicine; disease germ carriers, flies, mosquitoes; vaccination, anti-toxins, etc. Sanitation and public hygiene; water supplies, food inspection, garbage, and sewage removal, etc. Industrial diseases and accidents. Constructive hygiene. National, state and municipal health agencies.

Second half-year—Personal hygiene; diet and beverages; excretion, lungs and ventilation; skin, clothing, and bathing; physical education; athletics and games; hygiene of the blood and circulation; hygiene of the nervous system; rest; sleep; recreation; mental hygiene; sex hygiene; hygiene of the eyes, ears, nose, throat, teeth, and hair; efficiency and vital resistance; first aid to the injured.

#### International Law

See also Politics, p. 85

e103-104—International law. Lecture-study course. Credit II. Half course (e103-104) or full course (e103a-104a) each half-year. Professor Stowell

**4.20–6** p.m., Thursday, Room 302 Philosophy. Fee \$12 (e**103–104**) or **\$24** (e**103–104a**) each half-year

This course begins with a brief introductory examination of the basic principles of international law relating to war, peace, and neutrality. Application of principles to selected cases. Critical examination of current questions arising in the international relations of the United States and other countries. Especial emphasis is laid upon the practice of arbitration and the possibilities of its wider extension.

No previous knowledge of international law is required, but the prior study of an elementary text-book, such as Lawrence's Handbook of International Law, is strongly recommended.

International law e120—Modern European and American diplomacy. Credit II. Half-course (e120) or full-course (e120a) second half-year. Mr. Munro

7.40-9.30 p.m., Wednesday, Room 603 Journalism. Fee \$12 (e120) or \$24 (e120a)

Fundamentals of world politics. The European concert and the balance of power. Alliances and ententes. European crises since 1870. International congresses and conferences. The collapse of European diplomacy, 1914. The state papers critically examined.

American diplomacy during the Civil War, especially with respect to problems of neutrality. Foreign relations of the United States, 1865-1898. Anglo-American arbitrations. The diplomacy of the Spanish-American War. The United States as a world power. Canal diplomacy. The United States and the Great War.

International law e151-152—Political and diplomatic relations of China and the Powers since 1840. Credit II, IV. Half course each half-year. Mr. CLEMENTS

4.20-6 p.m., Wednesday, Room 605 Journalism. Fee \$12 each half-year

The reasons for China's former isolation; period of international conflict, 1840-1860; early American diplomatic relations with China; Taiping rebellion; Chino-Japanese war and treaty of Shimonoseki; leases, concessions, and "spheres of influence"; Hay circular note of 1899 regarding "open door"; Boxer rebellion; the peace protocol of 1901; effects of Russo-Japanese war; opium conferences; the "Maritime Customs," "treaty ports," and extra-territoriality; Knox proposal to neutralize the Manchurian railways; the revolution of 1911; recognition of the Republic; the "Five-Power Loan"; Kiaochau; the Japanese demands of 1915.

#### Latin

Latin eA5—Collegiate Latin. Horace, Odes: Catullus. Credit I, IV. 3 points first half-year. Dr. Guernsey

4.30-5.45 p.m., Monday and Thursday, Room 712 Journalism. Fee \$18. The same as Latin A2 in Columbia College

Latin eA6—Collegiate Latin. Livy (selections); Terence, one play. Credit I. IV. 3 points second half-year. Dr. Guernsey

4.30-5.45 p.m., Monday and Thursday, Room 712 Journalism. Fee \$18. The same as Latin A1 in Columbia College

Latin eX1—Elementary Latin. Credit I for the B.S. degree if taken in conjunction with Latin eX2; IV. 3 points first half-year. Miss WyE 7.30-9 p.m., Tuesday and Friday, Room 508 Philosophy. Fee \$18

The aim of this and the succeeding courses of the two-year cycle is to teach students to read, write and speak the language readily and accurately. To this end the work will be conducted in strict accordance with the principles of the Direct Method. There will be constant drill in the use of forms in oral and written work and systematic study of syntax and vocabulary, but translation from one language to the other will be deferred until the student has a sound knowledge of the elements of Latin.

No previous knowledge of Latin is required for this course.

Students are strongly urged not to elect an elementary course in another language in conjunction with Latin eX1.

Text-book: Paine and Mainwaring, Primus Annus; Decem Fabulae (Clarendon Press).

Latin eX2—Caesar, Nepos and prose composition. Credit I for the B. S. degree if taken in conjunction with Latin eX1; IV. 3 points second half-year. Miss WYE

7.30-9 p.m., Tuesday and Friday, Room 508 Philosophy. Fee \$18

The amount and scope of the reading in this course and in the supplementary courses Latin eY3-Y8 will follow closely the recent recommendations of the Cleveland Commission on Entrance Requirements in Latin. Great stress will be laid upon free composition and oral work. There will be occasional exercises in translation.

Prerequisite: Latin eX1 or its equivalent.

Text-books: Appleton, Puer Romanus; Teubner text editions of Caesar's Gallic War and the Lives of Nepos.

Latin eX3—Caesar, Nepos and prose composition. Credit I for the B. S. degree if taken in conjunction with Latin eX1; IV. 3 points first half-year. Dr. Reiley

4.30-6 p.m., Monday and Thursday, Room 512 Journalism. Fee \$18

This course, given in the first half-year, is planned for students who have studied Latin one year and for those who wish to review the work of the second year of high school.

Latin eY1—Ovid and Vergil. Credit IV. 3 points first half-year Miss Wyr.

3-4.30 p.m., Tuesday and Friday, Room 611 Journalism. Fee \$18

The aim of this course is to introduce the student to the study of Latin poetry. Attention is therefore centred upon the qualities which distinguish verse from prose, range of ideas, metrical form and poetic diction. Exercises in English translation will be more frequent than in the preceding course. Occasional summaries in Latin will be required.

Prerequisite: Latin eY3 and eY5 or eY3 and eY6.

Text-books: Gleason, A Term of Ovid; Harper and Miller, Vergil's Eneid (American Book Company).

Latin eY3—Cicero and Sallust. Credit IV if taken in conjunction with Latin eY5 or eY6. 3 points first half-year. Miss WYE

7-8.15 p.m., Monday and Thursday, Room 611 Journalism. Fee \$18

In this course the orations for the Manilian Law and for Archias will be read together with the account of the Catilinarian Conspiracy as it appears in Sallust's Catiline and in the Catilinarian orations.

Prerequisite: Latin eX1-X2 or the equivalent.

Text-books: Text editions of Sallust's Catiline and the six orations of Cicero specified; Strachan-Davidson, Cicero (Putnam).

Latin eY5—Latin prose composition. Credit IV if taken in conjunction with Latin eY3. 2 points first half-year. Miss Wye. Fee \$12 Section 1—2.10-3 p.m., Tuesday and Thursday, Room 611 Journalism Section 2—8.20-9.10 p.m., Monday and Thursday, Room 712 Journalism

This course is designed to give a thorough review of the material which is ordinarily included in the high school course in Prose Composition.

Prerequisite: Latin eX1-X2.

Text-books: Baker-Inglis, Latin Composition (Maemillan); Gildersleeve, Latin Grammar (Heath).

Latin eY6—Latin prose composition. Course Latin eY5 repeated. 2 points second half-year. Miss WyE

2.10-3 p.m., Monday and Thursday, Room 611 Journalism. Fee \$12

Latin eY8—Ovid and Vergil. Course Latin eY1 repeated. Credit IV. 3 points second half-year. Fee \$18

Section 1—3-4.30 p.m., Tuesday and Friday, Room 611 Journalism. Miss Wye

Section 2-7-8.30 p.m., Monday and Thursday, Room 611 Journalism Dr. Reiley

Latin e97-98—Latin Conversation. Credit IV. 2 points each half-year. Miss WyE

5.10-6 p.m., Tuesday and Friday, Room 302 Philosophy. Fee \$12 each half-year

The use of the direct method in linguistic teaching has until recently been confined to modern languages. Its application to ancient languages has been delayed partly by the feeling that those languages are "dead," partly by the lack of teachers

qualified to use Greek and Latin as the medium of instruction in the classroom Within the last few years, however, this method has been applied to Greek and Latin by Dr. W. H. D. Rouse, at the Perse School, Cambridge, England, with such success that the English Board of Education published the results of a special investigation of the work of this school.

This course is designed to give assistance to those who are interested in the oral use of Latin and the problems of the direct method.

#### Library Economy

The attention of students is called to the fact that these courses in Library economy are not a substitute for the one or two years' training of the library schools. A student who is devoting the entire time to study is strongly advised to elect also courses in English literature, French and German.

#### Library economy e1-2-Bibliography. Miss Keller

7.10-8 p.m., Friday, Room 611 Journalism. Fee \$12 each half-year

A study by means of lectures and problems of the standard works of bibliography and reference. General and national bibliography, American, English, French, and German. Reference works, i. e., encyclopedias and dictionaries, general and special, indexes to periodicals, and Government documents, statistical annuals, quotations, handbooks of information, etc.

Bibliography and book selection in American and English literature, foreign literature and history will be given by professors of the University.

Text-book: A. B. Kroeger, Guide to the Study and Use of Reference Books.

# Library economy e3-4—Cataloguing and classification. Miss Keller

7.15-9.45 p.m., Tuesday and Thursday, Room 501 Journalism. Fee \$12 each half-year

Lectures and practice work based on the A. L. A. catalogue rules; A. L. A. list of subject headings for use in dictionary catalogues, fourth edition; Rules for a Dictionary Catalogue, fourth edition, by C. A. Cutter and the Decimal Classification by Melvil Dewey.

First half-year, cataloguing; second half-year, cataloguing and classification.

#### Library economy e5—Library adminstration. 2 points first halfyear. Mr. Hicks

6-6.50 p.m., Wednesday, Room 611 Journalism. Fee \$12

The course of the book from the publisher through the departments of the library to the reader will be followed in detail of process and record as follows; Book selection and book buying, American publishers, the book order department, its staff, checking of invoices and order files, accessioning; the catalogue department of the large and the small library; book binding and rebinding; charging systems; library statistics; the library budget; the librarian's report; library advertising.

Practice work will be arranged. Required reading will be mainly in the files of the Library Journal and public libraries.

Library economy e7-8—Children's work. 1 point each half-year.

Miss Wright

11-11.50 a.m., Saturday, Room 605 Journalism. Fee \$6 each half-year

This course will take up the planning and equipment of the children's room, bulletin work, the selection and buying of books, story telling, reading circles, simple cataloguing, and classification as adapted to children's work, work with schools, playgrounds, and the "home library."

Library economy e21—Indexing, filing and cataloguing as applied in business. 2 points first half-year. Miss Wallace

7.45-9.45 p.m., Monday, \*Room 601 Journalism. Fee \$12

Lectures and practice. A course in indexing and filing correspondence, clippings, pamphlets, etc. The application of library methods, card and classification systems, especially the Dewey Decimal system, to records in business offices and special libraries, commercial houses, banks and corporations.

Library economy e22—Indexing, filing and cataloguing as applied in business. Course e21 repeated in the second half-year. 2 points. Miss Wallace

7.45-9.45 p.m., Monday, \*Room 601 Journalism. Fee \$12

#### Mathematics

Mathematics eX1—Algebra, elementary and intermediate course (complete). 4 points first half-year. Mr. Tanzola

6.10-7 p.m., Monday, Tuesday, Thursday, Friday, Room 603 Journalism. Fee \$24

This course reviews elementary algebra to quadratics and goes beyond. It includes the fundamental operations, factoring, fractions, ratio and proportion, quadratics, binomial theorem (simple forms), progressions and graphical methods. It is not open to beginners.

Text-book: Wentworth's New School Algebra.

Mathematics eX2—Algebra, elementary and intermediate course (complete). Course eX1 repeated. 4 points second half-year. Mr. Curt 7.25-8.15 p.m., Monday, Tuesday, Thursday, Friday, Room 712 Journalism. Fee \$24

Mathematics eX3—Algebra, elementary course. 3 points first half-year. Mr. Moskowitz

7-8.15 p.m., Monday and Thursday, Room 713 Journalism. Fee \$18

This course, planned for beginners, covers elementary algebra to quadratics.

Mathematics eX4—Algebra, intermediate course. 3 points second half-year. Mr. TANZOLA

7-8.15 p.m., Monday and Thursday, Room 713 Journalism. Fee \$18

This course is planned especially for students who took eX3 in the first half-year. It is open also to all others who desire to review briefly factoring and proceed through quadratics.

<sup>\*</sup>After the first eight lectures this class will meet often at various business offices , for actual experimental work.

Mathematics eX5—Algebra, intermediate course. 3 points first half-year. Fee \$18. Mr. Curt

Section 1—8.20–9.35 p.m., Monday and Thursday, Room 603 Journalism Section 2—8.20–9.35 p.m., Tuesday and Friday, Room 603 Journalism

This course is planned especially for students who take Mathematics esX in Summer Session and for those who wish to complete their requirements in intermediate algebra. The work will begin with factoring and will continue through quadratics.

Text-book: Hawkes' Second Course in Algebra.

Mathematics esX—Elementary algebra. Summer Session evening class. Mr. McMackin

7.15-8.15 p.m., July 6-August 13, Room 712 Journalism. Fee \$12

This course, planned for beginners, covers elementary algebra to quadratics. It includes the fundamental operations, factoring and fractions. Students taking this course should continue by electing Course eX5 in September.

Mathematics eY1—Plane geometry (complete). 4 points first halfvear. Mr. Curt

7.25-8.15 p.m., Monday, Tuesday, Thursday, Friday, Room 712 Journalism. Fee \$24

The first five books of Wentworth's Geometry, including rectilinear figures, the circle, proportion, areas of polygons, regular polygons and circles.

Text-book: Wentworth's Geometry (Wentworth and Smith's revision).

Mathematics eY2—Plane geometry. Course eY1 repeated in the second half-year. 4 points. Mr. Moskowitz

6.10-7 p.m., Monday, Tuesday, Thursday, Friday, Room 603 Journalism. Fee \$24

Mathematics esY—Plane geometry. Summer Session evening class. 2 points. Mr. McMackin

8.20-9.20 p.m., July 6-August 13, Room 712 Journalism. Fee \$12 For description see Mathematics eY1.

Mathematics eA1—Trigonometry. Credit I, IV. 2 points first half-year. Fee \$12

Section 1—4.10-5 p.m., Tuesday and Friday, Room 609 Fayerweather. Mr. McMackin

Section 2—6.10-7 p.m., Tuesday and Friday, Room 510 Fayerweather. Mr. Belcher

The subject-matter of this course includes trigonometric functions, circular measure, relations between the functions, functions of several angles, inverse functions, trigonometric equations, logarithms, solution of triangles.

Elementary algebra through the quadratic equation is presupposed.

Equivalent to Mathematics A1 or A4 in the Announcement of Columbia College.

Mathematics eA3—Solid geometry. Credit I, IV. 3 points first half-year. Mr. McMackin

4.10-5.25 p.m., Monday and Thursday, Room 609 Fayerweather. Fee \$18

In addition to the usual theorems on lines, planes and solids, the geometry of the sphere, and the development of space intuition, this course lays special stress upon the purely logical side of the subject and the nature of mathematical proof. Plane geometry is presupposed.

The above course is equivalent to Mathematics A2 in the Announcement of Columbia College.

Mathematics eA4—Trigonometry. Course eA1 repeated. Credit I, IV. 2 points second half-year. Mr. Belcher

8.20-9.10 p.m., Monday and Thursday, Room 609 Fayerweather. Fee \$12

(For description of this course see eA1 above.)

Mathematics eA6—Solid geometry. Course eA3 repeated. Credit I, IV. 3 points second half-year. Mr. McMackin

7-8.15 p.m., Monday and Thursday, Room 609 Fayerweather. Fee \$18 (For description see eA3 above.)

Mathematics e1—Algebra. Credit I, IV, V. 3 points first half-year. Mr. McMackin .

7-8.15 p.m., Tuesday and Friday, Room 609 Fayerweather. Fee \$18

This course is designed for students who desire to continue with such more
advanced topics as permutations and combinations, determinants with applications to the solutions of linear equations, complex numbers, theory of equations
with reference to the solution of numerical equations of higher degree, undetermined coefficients involving the use of finite series, and partial fractions.

Acquaintance with the elements, including the quadratic equation, is presupposed Equivalent to Mathematics 1 in the Announcement of Columbia College.

Mathematics e2—Algebra. Course e1 repeated. Credit I, IV, V. 3 points second half-year. Mr. McMackin

8.20-9.35 p.m., Monday and Thursday, Room 510 Fayerweather. Fee \$18

Mathematics e3—Analytical geometry. Credit I, IV, V. 3 points first half-year. Mr. Nowlan

8.20-9.35 p.m., Monday and Thursday, Room 510 Fayerweather. Fee \$18

Introduction to algebraic geometry, dealing with such topics as coordinate systems, transformations, loci and their equations, the straight line, circle, parabola, ellipse, hyperbola, the geometric interpretation of the general equation of second degree, and the elements of three-dimensional geometry.

eA1 and e1 or their equivalents are presupposed.

Equivalent to Mathematics 3 or 4 in the Announcement of Columbia College.

Mathematics e4—Analytical geometry. Course e3 repeated. Credit I, IV, V. 3 points second half-year. Mr. Nowlan

7-8.15 p.m., Tuesday and Friday, Room 609 Fayerweather. Fee \$18 (For description of course see e3 above.)

Mathematics e15-16—Calculus. Credit I, IV, V. 3 points each half-year. Mr. Woodward

7-8.15 p.m., Tuesday and Friday, Room 615 Fayerweather. Fee \$18 each half-year

The notions and operations of function, differentiation, and integration are presented with applications to geometry, physics and mechanics.

e3 or its equivalent is presupposed.

Equivalent to Mathematics 15-16 in the Announcement of Columbia College.

Mathematics e75-76—Calculus. Credit I, IV, V. 4 points each half-year. Mr. Belcher

6.35-8.15 p.m., Monday and Thursday, Room 615 Fayerweather. Fee \$24 each half-year

This course, designed for students intending to qualify for the profession of engineering, is equivalent to Mathematics 75-76 in the Announcement of Columbia College.

#### Mechanics

Mechanics e1—Statics. Credit I, IV. 3 points first half-year. Mr. Whittemore

6-7.20 p.m., Monday and Thursday, Room 510 Fayerweather. Fee \$18

Coplanar statics is treated by both algebraic and graphical methods.

Text-book: Maurer's Technical Mechanics, third edition.

Prerequisites: Entrance physics and entrance mathematics.

#### Music

Music eX1-X2—University chorus. Professor Walter Henry Hall 8.15-9.45 p.m., Wednesday, Earl Hall. Fee for University students expecting credit \$6, otherwise no charge; for all others \$2 for the year. Credit I, 1 point with special arrangement if taken in conjunction with another course in music

For the practice and performance of various forms of choral art. It is expected that concerts will be given during the year, when the University Chorus will join with that of Brooklyn (Brooklyn Oratorio Society), forming a large festival chorus. Students will be allowed to become members of this chorus only after application to Professor Hall, and after a voice trial.

Music e5-6—Ear training and dictation. Credit IV. 2 points each half-year. Mr. Manning

4.10-5.50 p.m., Friday, Room 703 Journalism. Fee \$12 each half-year

Aims to develop the rhythmic sense, the recognition of tones, intervals and chords, and the ability to hear mentally the melodies, harmonies and rhythms that one sees on the printed page; and to write, from dictation, music in two to four parts.

An elementary knowledge of notation is required.

Music e7-8—Elementary harmony. Credit I, IV. 2 points each half-year. Mr. WARD

4.10-5.50 p.m., Monday, Room 701 Journalism. Fee \$12 each half-year

This course treats of the fundamental principles of melody writing, chord-construction and chord interrelation through the medium of four-part writing. It will include the study of triads, seventh and ninth chords and their inversions, suspensions and other non-harmonic devices and simple modulation and will involve the harmonizing of given basses and melodies. A knowledge of notation and ability to play simple exercises on the piano are required for admission.

Music e7a—Elementary harmony. Credit I, IV. 2 points first half-year. Mr. WARD

1.10-2.50 p.m., Saturday, Room 701 Journalism. Fee \$12

This course follows Music e8a, and is planned for students who have had some instruction in elementary harmony.

Music e8a—Elementary harmony. Credit I, IV. 2 points second half-year. Mr. WARD

1.10-2.50 p.m., Saturday, Room 701 Journalism. Fee \$12

This course, beginning in February, is the same as Music e7 and is planned for students who desire to study the fundamental principles of harmony.

Music e9-10—Advanced harmony and elementary form. Credit I, IV. 2 points each half-year. Mr. WARD

4.10–5.50 p.m., Saturday, Room 703 Journalism. Fee \$12 each half-year

A continuation of Course e7-8, taking up the various methods of modulation, altered chords, organ point, etc. Analysis of works by the great composers, and the study of the smaller forms, leading to original composition, constitute an important part of the work of this course.

Applicants should consult the instructor before registering.

Music e11-12—Applied harmony. Credit I, IV. 2 points each halfyear. Mr. Kraft

9-10.40 a.m., Saturday, Room 701 Journalism. Fee \$12 each half-year

The aim of this course is to aid the student in composing music in the small forms, both vocal and instrumental.

Prerequisite: Practice in melodic invention and knowledge of chord combinations.

Music e53-54—Introductory harmony. Credit I, IV. 2 points each half-year. Mr. Kraft

11-12.40 a.m., Saturday, Room 701 Journalism. Fee \$12 each half-year

The aim of this course is, first, to lead the student to observe the structure of hymn-tunes, chorals and simple compositions, with reference to the melodic movement of parts and to the character and distribution of chords. Second, to give practice in melodic invention and chord combinations expressed in simple constructive work. This work forms the basis for the study of theoretic harmony.

#### Philosophy

Philosophy eA1—Principles of science: methods, deductive and inductive logic. Lectures, recitations, and individual consultations with the instructor. Credit I, IV. 3 points first half-year. Dr. McClure 7-8.15 p.m., Tuesday and Friday, Room 603 Journalism. Fee \$18

This course aims at drilling students in the forms of accurate thinking, and at developing skill in detecting errors in reasoning. The principles of inductive and deductive logic will be taught and applied, both critically and constructively. to a large number of arguments.

Text-book: Dewey's How We Think and Jevon's Studies in Deductive Logic. This course is the same as Philosophy A1 in Columbia College.

Philosophy eA2—Principles of science: concepts and problems of philosophy. Lectures, recitations, and individual consultations with the instructor. Credit I, IV. 3 points second half-year. Mr. Coss

7-8.15 p.m., Tuesday and Friday, Room 603 Journalism. Fee \$18

In this course the scientific knowledge of the present day will be used as a basis of interpreting and criticizing fundamental philosophic conceptions of human nature and man's place in the universe.

This course is the same as Philosophy A2 in Columbia College.

Philosophy eA4—Principles of science: methods, deductive and inductive logic. Credit I, IV. 3 points second half-year. Dr. McClure 5-6.15 p.m., Tuesday and Friday, Room 308 Philosophy. Fee \$18

Course eA1 repeated in the second half-year for students entering at that time. For description see above.

Philosophy eA5—Principles of science: concepts and problems of philosophy. Credit I, IV. 3 points first half-year. Mr. Coss 5-6.15 p.m., Tuesday and Friday, Room 308 Philosophy. Fee \$18

Course eA2 given in the first half-year. For description see above.

Philosophy e21—Ethics, theoretical and practical. Credit I, IV. 2 points first half-year. Dr. COOLEY

4.10-5.50 p.m., Wednesday, Room 611 Journalism. Fee \$12

An inquiry into the true principles of conduct, based upon McDougal's Socia Psychology and Dewey and Tuft's Ethics with applications to present-day issues.

Philosophy e22—Ethical ideals, past and present. Credit I, IV. 2 points second half-year. Dr. Cooley

4.10-5.50 p.m., Wednesday, Room 611 Journalism. Fee \$12

A historical and critical survey of the ends of life which men have actually put before them as revealed in the literatures, religions, and civilizations of the world.

Philosophy e135-136—Radical, conservative, and reactionary tendencies in present-day morals. Credit II. Full course (e135-136) or half course (e135a-136a) each half-year. Professor Montague 7.40-9.30 p.m., Friday, Room 302 Philosophy. Fee \$24 (full course) or \$12 (half-course) each half-year

The course is designed as an introduction to contemporary problems of social or institutional ethics. These problems arise in connection with the conflicting theories as to the true nature and value of the established institutions of human society. The work of the course will, therefore, consist in a general survey of these six fundamental institutions or forms of social relationship, and of the problems and controversies related to each of them. The order of study will be as follows:

1. The political problem of the powers of the state (Anarchism vs. Governmentalism)

2. The international problem of the federation of the world (Pacificism vs. Militarism).

3. The industrial problem of the status of property (Socialism vs. Laissez-faire).

4. The educational problem of the purpose of the school (Vocationalism vs. General Culture).

5. The woman problem of the organization of the family (Feminism vs. the Claim of the Home).

6. The religious problem of the ideal of the church (Anti-clericalism vs. Christianity).

#### Physical Education

(For men students only)

Physical education eA1-A2—Gymnastics and games. Credit I, IV. 2 points each half-year. Professor Elliott

8.30-9.20 p.m., Monday, Thursday, Saturday. Fee \$12 each half-year

This course comprises free exercises with and without hand apparatus and chest-weight exercises; simple work on gymnastic apparatus, such as horizontal ladder, horizontal bar, ropes, buck, horse, etc., gymnasium games.

Physical education eY1-Y2—Swimming. 2 points each half-year.

Fee \$12 each half-year. Mr. Kennedy

Section 1-Monday, 8.30-9 or 9-9.30 p.m.

Section 2—Thursday, 8.30-9 or 9-9.30 p.m.

Section 3—Saturday, 8.30-9 or 9-9.30 p.m.

Students may receive instruction on either Monday, Thursday, or Saturday and will have the privilege of using the swimming pool on the remaining evenings.

Physical education eZ1-Z2—Boxing. 2 points each half-year. Fee \$12 each half-year. Mr. Weeman

Section 1—Thursday, 7.30-8.30 p.m.

Section 2—Thursday, 8.30-9.30 p.m.

Students have the privilege of using the gymnasium and swimming pool Monday, Thursday, and Saturday evenings from 7 to 10 o'clock.

NOTE.—Students taking this course for credit in Columbia College will be required to attend one hour a week (Saturday, 7.30-8.20 or Tuesday and Thursday, 5-6.15) a course in hygiene and sanitation during the first term; and to pass an examination in swimming during the second term.

#### Physics

Physics eA1-A2—Elementary course in general physics. 3 hours lectures and recitations, with 2 hours laboratory work. Credit I, IV. 4 points each half-year. Mr. FARWELL and Mr. SAYLOR

7.30-9 p.m., Monday and Thursday, Room 304 Fayerweather, lectures. The laboratory work (Room 401 Fayerweather) is done in sections of 12 students each, the number of sections and the hours of meeting depending upon the number registering for the course. In 1914-15 the sections met as follows:

Section 1-Monday, 5-7 p.m.

Section 2-Monday and Thursday, 6.30-7.30 p.m.

Section 3-Monday, 9-11 p.m.

Section 4—Thursday, 9-11 p.m.

In assigning students to laboratory sections preference will be given to those who register first. Fee \$24 each half-year

An introductory course in physics for students who wish to become acquainted with the results, methods, and spirit of the science, whether they intend to pursue its study further, or wish an elementary knowledge of physics only as a matter of general interest. A knowledge of elementary algebra and geometry is required. Trigonometry is not required.

# Physics eP1—General principles and processes of photography. Lectures. 2 points first half-year. Dr. Weinrich

7.10-9 p.m., Friday, Room 304 Fayerweather. Fee \$12

This course is designed to give the student a general knowledge of the theory and practice of photography. It comprises the study of the photographic apparatus, including the testing of lenses and shutters; the advantages and disadvantages of different types of lenses and shutters; a detailed explanation of the construction and manipulation of the various adjustments of different types of cameras; the exposure and exposuremeters; the theory of the latent image, its normal and abnormal development and the general treatment of dry plates or films; an elementary treatment of orthochromatism in conjunction with the various processes of color photography; a discussion of the more important printing processes, including printing-out and gaslight papers as well as lantern slides; copying and enlarging.

Whenever practicable, the lectures will be illustrated by experiments. Prerequisites: Elementary physics and chemistry.

# Physics eP2—Photo-physics and sensitometry. Lectures. 2 points second half-year. Dr.Weinrich

7.10-9 p.m., Friday, Room 304 Fayerweather. Fee \$12

A more detailed and technical treatment of photographic emulsions and their properties. Laws of photographic action. Effect of exposure and development on density and opacity. Plate-grain and speed. Orthochromatism by bathing, and the use of dyes for regional sensitiveness. Spectrum-photography and photometry. Color filters.

Whenever practicable the lectures will be illustrated by experiments.

Prerequisite: Course eP1 or its equivalent. Students should consult the in structor about the prerequisite.

#### **Politics**

Politics e1-2—American government. Credit I, IV. 3 points each half-year. Fee \$18 each half-year

Section 1—4.30-5.45 p.m., Monday and Thursday, Room 712 Journalism. Professor McBain and Mr. MacMahon

Section 2—8.20-9.35 p.m., Monday and Thursday, Room 306 Engineering. Professor Sait

A general survey of the whole field, based largely on Beard's American Government and Politics (edition of 1914), and designed both for those who wish to teach the subject in the schools and for those who wish to gain an insight into the responsibilities of citizenship. Attention will be confined to national government in the first term; to state, municipal, and local government in the second.

Identical with Politics 1-2 in Columbia College.

Politics e105-106—Contemporary American politics. Credit II. Half course (e105-106) or full course (e105-106a) each half-year. Professor McBain

4.30--6.10 p.m., Thursday, Room 612 Journalism. Fee \$12 (half course) or \$24 (full course) each half-year

A brief survey of the development of political issues in the United States since the reconstruction period, followed by a detailed study of specific problems of modern government and politics. These problems will be studied in the light of their historical origin and analyzed from the viewpoint both of theory and of practice. While some attention will be given to the matter of the timeliness of the topics presented, the course will not consist merely of a review of current political events.

Politics e107-108—Comparative government and politics. Credit II. Half course (e107-108) or full course (e107a-108a) each half-year. Professor Sait

11-12.40 a.m., Saturday, Room 712 Journalism. Fee \$12 (half course) or \$24 (full course) each half-year

An analysis of the English, French, and German governments with emphasis upon their actual operation and the functioning of political parties. In comparing European and American practice students will be supposed to have some acquaintance with the working of American institutions.

## Practical Optics

The University offers a two years' course in Practical Optics for students of optometry. A special circular describing these classes will be sent on application to the Secretary of the University.

# Psychology

Psychology e1-2—Elements of psychology. Lectures, demonstrations, discussions and recitations. Credit I, IV. 3 points each half-year. Fee \$18 each half-year. Dr. POFFENBERGER

Section 1-4.30-5.45 p.m., Tuesday and Friday, Room 407a Schermerhorn

Section 2—7-8.15 p.m., Tuesday and Friday, Room 407a Schermerhorn
This course is designed to give the student a knowledge of the essential facts
and fundamental laws of psychology. It serves as an introduction to the more ad-

vanced courses in psychology and philosophy, and also meets the requirements of boards of education for a course in general or pure psychology. The first part of the course deals with the nervous system and sensation, the second part with the higher mental processes.

Psychology e135-136—Recognition and treatment of abnormal mental states. Lectures, discussions, and actual clinical cases for direct study. Half course each half-year. Credit II. 2 points each half-year. Dr. BISCH

4.30-6.10 p.m., Wednesday, Room 407 Schermerhorn. Fee \$12 each half-year

During the first half-year the topics include, among others, anatomy of the nervous system, certain organic diseases, individual differences in general, precocity, retardation, arrested development, various types of feeble-mindedness, nervous irritability, specialized intellectual defects, moral eccentricities, etc.

During the second half-year various psychological tests, the different psychoses, the psychoneuroses, prophylaxis, sex-hygiene, hypnosis, psychoanalysis, etc., will be taken up.

Psychology e141-142—Psychology of advertising. Half course each half-year. Lectures, demonstrations, experiments and discussions. Credit II. 2 points each half-year. Either half may be taken separately. Professor Hollingworth

7.40-9.30 p.m., Wednesday, Room 407 Schermerhorn. Fee \$12 each half-year

A study of the principles, methods and psychological basis of effective advertising and publicity, with reference chiefly to such topics as the nervous basis of mental processes, the tasks of an advertisement, advertising types, media and instruments—their psychological characteristics, the nature, forms, laws and results of attention, the value of the mechanical devices (intensity, magnitude, contrast, motion, position, etc.), the value of the interest incentives (novelty, color, picture, feeling, tone, suggested action, instinct, the comic, etc.), the principles of artistic arrangement of materials—complexity, unity, quality, rhythm and rhyme, balance, stability, design; the feeling tone of images, words, objects, associations, etc., association and memory, individual differences, memorability of different kinds of facts; decision and action; the nature and laws of suggestion; the relative strength and persuasiveness of various instincts, interests and forms of appeal; experimental measurements of the "pulling-power" of advertisements, compared with actual business returns; methods of keying copy and of judging beforehand the probable value of an advertisement; the relative legibility of different kinds and sizes of printing types; sex, age and class differences of interest to advertising men; etc... etc. Illustrated by examples from current advertising, and by lantern slides.

Psychology e145-146—Applied psychology. Half course each half-year. Lectures, demonstrations and discussions. Credit II. 2 points each half-year. Either may be taken separately. Professor Hollingworth 4.10-5.50 p.m., Wednesday, Room 401 Schermerhorn. Fee \$12 each half-year

The laws and methods of experimental psychology will be applied to such fields as advertising and selling, skill and efficiency, observation and testimony, medicine, eugenics, vocational guidance and individual differences, industrial motion-study, and the diagnosis and treatment of mental defectiveness.

Psychology e165-166—Social psychology. Half course each halfyear. Lectures, discussions and readings. Credit II. Professor WOODWORTH

7.20-8.10 p.m., Tuesday and Friday, Room 407 Schermerhorn. Fee \$12 each half-year

Human instinct and intelligence in their social aspects; the influence of the social environment on individual development; the psychology of crowds and of peoples; racial and national traits; and, in general, the mental life and achievements of communities.

Prerequisite: Psychology e1-2 or an equivalent.

Psychology e191-192—Psychology of advertising and selling. Credit II. Half course each half-year. Professor Hollingworth

4.10–5.50 p.m., Thursday, Room 401 Schermerhorn. Fee \$12 each half-year

For description see p. 42

Psychology e235-236—Recognition and treatment of abnormal mental states—advanced course. Lectures, discussions, and conferences, together with abundant clinical material. Credit II. Full course each half-year. Dr. BISCH

7-8.40 p.m., Wednesday, Room 610 Journalism. Fee \$24 each half-year

Detailed and comprehensive study of certain abnormal mental conditions of wide community interest, such as alcoholism, drug addictions, moral deviations, etc., together with intensive study of topics outlined under Psychology e135-136. So far as feasible directed original investigations will be pursued by each student.

Prerequisite or parallel: Psychology e135-136, or equivalent, but only with the consent of the instructor.

## Religion and Religious Education

Religion e5—Survey of Old Testament literature and history. Lectures and discussions. 2 points first half-year. Mrs. Merrett 4.10-5.50 p.m., Tuesday, Room 609 Journalism. Fee \$12

This course presents the fundamental structure and ideas of the Old Testament as a background for teaching or for general knowledge. The compilation of the literature, the main historical outline, the value and meaning of the folklore and traditional stories, the poetic and prophetic elements, the Apocalyptic literature.

Religion e6—The rise of New Testament literature. Lectures and discussions. 2 points second half-year. Mrs. Merrett 4.10-5.50 p.m., Tuesday, Room 609 Journalism. Fee \$12

The sources for the life of Jesus and the beginnings of the Church.

Religion e7-The use of the Bible in the instruction of the young.

Designed for parents and teachers. 2 points first half-year. Mrs. MERRETT 4.10-5.50 p.m.. Friday, Room 511 Journalism. Fee \$12

Selecting and grading material. Preparing and telling Bible stories. Preparing historical outlines. Model lessons. Map making. Use of pictures and other collateral material.

#### ROMANCE LANGUAGES

All the undergraduate courses in Romance languages in Extension Teaching are under the general supervision of Professor Loiseaux

#### French

French eA1-A2—Elementary course. Credit I, IV. 3 points each half-year. Fee \$18 each half-year

Section 1—4.30-5.45 p.m., Monday and Thursday, Room 713 Journalism. Mr. OLINGER

Section 2—4.30-5.45 p.m., Tuesday and Friday, Room 713 Journalism. Dr. Alexander

Section 3—7-8.15 p.m., Monday and Thursday, Room 507 Journalism. Mr. DE BACOURT

This course is intended for students who have no previous knowledge of French. The instruction is planned so as to enable students to read at sight ordinary French prose. Reading will constitute a large part of the work of the course. In connection with the reading, a careful study of the essentials of grammar and syntax will be taken up together with simple composition. Attention will be paid to correct pronunciation and as far as possible to the understanding of simple spoken French. Equivalent to Course A1-A2 as given in Columbia College.

Text-books: Thieme and Effinger, A French Grammar; Grandgent, Materials for French Composition, Part III; Douay, An Elementary French Reader; Daudet, Trois Contes choisis; Laboulaye, Contes bleus; Vigny, Le Cachet rouge.

French esA1—Elementary course. Summer Session evening class. Credit I, IV. 2 points. Mr. Cohn-McMaster

6-6.50 p.m., July 6-August 13, Room 709 Journalism. Fee \$12 Equivalent to Course eA1. For description see Course eA1-A2 above.

French eA3-A4—Elementary course. Equivalent to Course eA1. Credit I, IV.  $1\frac{1}{2}$  points each half-year. Mr. Swann

9.30-10.45 a.m., Saturday, Room 605 Journalism. Fee \$9 each half-year This course will enable the student to master the elements of French grammar, the regular verbs, simple idioms, a few of the irregular verbs, and enough of the subjunctive to make possible the reading of easy French. Some attention will be paid

French eA5-A6—Elementary course. Equivalent to Course eA2. Credit I, IV, 1½ points each half-year. Mr. SWANN

as far as possible to the training of the ear in understanding spoken French.

11-12.15 a.m., Saturday, Room 610 Journalism. Fee \$9 each half-year This course is supplementary to Course eA3-A4.

French eA8—Elementary course. Credit I, IV. 3 points second half-year. Mr. Fortier

4.30-5.45 p.m., Tuesday and Friday, Room 507 Journalism. Fee \$18 Equivalent to eA1, given in the second half-year for students who enter at that time. This course should be followed by eA9 in the succeeding half-year. For description see eA1-A2 above.

French eA9—Elementary course. Credit I, IV. 3 points first half-year. Mr. Fortier

4.30-5.45 p.m., Tuesday and Friday, Room 507 Journalism. Fee \$18 Equivalent to Course eA2. Planned also for students who began the study of French in the Summer Session. It is suitable for persons who have had one year of French.

French eB1-B2—Intermediate course—grammar, reading and composition. Credit I, IV. 3 points each half-year. Fee \$18 each half-year

Section 1—4.30-5.45 p.m., Monday and Thursday. Room 507 Journalism. Professor BIGONGIARI

Section 2—7-8.15 p.m., Tuesday and Friday, Room 612 Journalism. Mr. Mantz

In Course eB1, the work will include a review of the essentials of grammar, and in Course eB2, some oral practice in reading and conversation. The reading will consist of narrative and historical texts, and several plays.

Text-books: Anatole France, Le Livre de mon Ami; Victor Hugo, Qualre vingttreize; Daudet, Tartarin de Tarascon; René Bazin, Les Oberlé: Augier et Sandeau. Le Gendre de M. Poirier; Fontaine, French Composition.

Equivalent to Course B1-B2 as given in Columbia College.

French eB3-B4—Intermediate course—grammar, reading and composition. Equivalent to Course eB1. Credit I, IV. 1½ points each half-year. Mr. Mantz

12.15-1.30 p.m., Saturday, Room 512 Journalism. Fee \$9 each half-year (For description of course see eB1-B2.)

French eB5-B6—Intermediate course. More advanced than eB3-B4. Equivalent to eB2. Credit I, IV. 1½ points each half-year. Mr. Mantz 2-3.15 p.m., Saturday, Room 512 Journalism. Fee \$9 each half-year

French e3-4—Practical course and introduction to French literature. Composition, readings, lectures. Credit I, IV. 3 points each half-year. Professor MULLER

4.30-5.45 p.m., Tuesday and Friday, Room 605 Journalism. Fee \$18 each half-year

The work is to consist of dictations and conversations on the history of French literature, supplemented by the reading of selected works from representative authors. Students will also be required to write themes in French.

Text-books: Voltaire, Le Siècle de Louis XIV; Bossuet, Oraisons Funèbres; Taine, L'Ancien Régime; Balzac, Eugénie Grandet; Renan, Souvenirs d'Enfance et de Jeunesse; Ste. Beuve, Causeries du Lundi (1 vol. Garnier); Oxford Book of French Verse.

French eJ3-J4—Journalistic French. Credit I, IV. 3 points each half-year. Mr. DE BACOURT

7-8.15 p.m., Tuesday and Friday, Room 507 Journalism. Fee \$18 each half-year

A course in reading of French newspapers, reviews and magazines; lectures on the history of the French press. French government and life, with special reference to French journalism. Considerable attention will also be paid to commercial French and the acquisition of a vocabulary peculiar to business life.

French e5-6—General survey of French literature in the seventeenth century. Credit I, IV. 3 points each half-year. Professor Loiseaux, and, in the second half-year, the visiting French lecturer, if possible

4.30-5.45 p.m., Tuesday and Friday, Room 707 Journalism. Fee \$18 each half-year

The subject of the course is the history of French literature during the century of Louis XIV. The principal authors studied will be Descartes, Pascal, Bossuet, Madame de Sévigné, La Rochefoucauld, La Bruyère, Corneille, Molière, Racine. Boileau and La Fontaine. The course is conducted entirely in French.

Text-books: Lanson, Histoire de la Littérature Française (eleventh edition), and the works of the authors named above.

Equivalent to Course 5-6 as given in Columbia College and Barnard College.

French e9-10—Advanced composition and practice in speaking French. Credit I, IV. 3 points each half-year. Mr. FORTIER

4.30-5.45 p.m., Monday and Thursday, Room 707 Journalism. Fee \$18 each half-year

The objects of this course are to give students a thorough appreciation, and, so far as possible, mastery of the French language as an instrument of expression. The exercises will be of composition, reading aloud, reciting and letter writing. A general study will be made of the constitution of the language and of the different ways ideas present themselves to the English and French mind. During the second half-year, a careful study will be made of the principles of French versification and diction.

Text-books: Larive et Fleury, Troisième année de Grammaire; La Fontaine, Fables; Leune, Difficult Modern French, Blanchard, French Idioms.

For outside reading: Reinach, L'Eloquence politique en France au XIXe siècle.

French e11-12—French literature, after the classical period. Credit I, IV. 3 points each half-year. Professor MULLER

7-8.15 p.m., Monday and Thursday, Room 307 Hamilton. Fee \$18 each half-year

The object of the course will be to make the students acquainted with the masterpieces that have been produced in France since the beginning of the eighteenth and nineteenth centuries. The writers chiefly studied will be Montesquieu, Voltaire, Rousseau, Diderot, Le Sage, Chateaubriand, Victor Hugo, Balzac, George Sand, Michelet, Renan, Sainte-Beuve, Emile Augier and Alexandre Dumas Fils.

French e103-104—History of French literature in the eighteenth century. Credit II. Full course each half-year. Professor Loiseaux and, in the second half-year, the visiting French lecturer, if possible

4.30-5.45 p.m., Monday and Thursday, Room 609 Journalism. Fee \$24 each half-year

The subject of the course is the history of French literature during the period the intellectual life of which preceded the breaking out of the French Revolution. The principal authors studied will be Voltaire, Montesquieu, Jean-Jacques Rousseau, Diderot, d'Alembert and Beaumarchais. Some attention will be paid to the novelists, especially to Le Sage and Prévot.

Text-books: Lanson, Histoire de la Littérature Française and the works of the authors named above.

Equivalent to Course 103-104 as given under the Faculty of Philosophy of Columbia University.

French e221-222—Special topics in French literature. The visiting French lecturer. Credit II. Full course each half-year

4.30-5.45 p.m., Monday and Thursday, Room 307 Philosophy. Fee \$24 each half-year

This course consists of the treatment of a special subject in French literature selected by the French lecturer designated during each summer by the University of Paris and the French Ministry of Public Instruction. It is supplemented by the linguistic aesthetic and historical explanations of passages of the authors studied. It is conducted entirely in French.

Will not be given unless elected by at least six students.

#### Italian

Italian e1-2—Elementary course. Credit I, IV. 3 points each half-year. Professor Livingston

7-8.15 p.m., Monday and Thursday, Room 709 Journalism. Fee \$18 each half-year.

The aim of this course is to impart an accurate reading knowledge of modern Italian, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in Course e2 special attention will be paid to Italian composition.

Italian e3-4—Advanced course. Credit I, IV. 3 points each halfyear. Professor Livingston

4.30-5.45 p.m., Monday and Thursday, Room 511 Havemeyer. Fee \$18 each half-year

In this course much more reading is done than in Course e1-2. The two courses together may be considered a preparation for the graduate courses in the University.

#### Spanish

Spanish esX1—Spanish conversation. Summer session evening class. 2 points. Mr. Bonilla

7.30-8.20 p.m., July 6-August 13, Room 603 Journalism. Fee \$12

Spanish es X2—Spanish conversation. Summer session evening class. 2 points. Mr. BONILLA

4.30-5.20 p.m., July 6-August 13, Room 603 Journalism. Fee \$12

Spanish e1-2—Elementary course. Credit I, IV. 3 points each half-year. Fee \$18 each half-year

Section 1—3.10-4.25 p.m., Monday and Thursday, Room 609 Journalism. Mr. IMBERT

Section 2—6.10-7.25 p.m., Tuesday and Friday, Room 511 Journalism. Mr. HAYDEN

The aim of this course is to impart an accurate reading knowledge of modern Spanish, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in Course e2 special attention will be paid to Spanish composition.

Text-books: Loiseaux, Spanish Grammar, Elementary Spanish Reader, Spanish Composition; P. A. de Alarcón, El Capitán Veneno; Galdós, Marianela, Doña Perfecta; Carrión y Aza, Zaragüeta. Text-books subject to change.

Outside reading: Valera, El Pajaro Verde; Le Sage, Gil Blas (Padre Isla's translation).

Equivalent to Course 1-2 as given in Columbia College.

Spanish e3-4—Advanced course. Credit I, IV. 3 points each halfyear. Fee \$18 each half-year

Section 1—4.30-5.45 p.m., Monday and Thursday, Room 605 Journalism. Professor Gerig

Section 2-7.30-8.45 p.m., Tuesday and Friday, Room 605 Journalism

Second year course. A continuation of Course e1-2, in which emphasis will be placed on rapid reading of modern prose, on advanced composition and conversation. Text-books: Hills and Ford, A Spanish Grammar; Crawford's Spanish Composition; Valdés, José; Galdés, Marianela; Valera, El Comendador Mendoza. There will be some outside reading in connection with the course.

Equivalent to Course 3-4 as given in Columbia College.

# Spanish e5-6—Practical course and introduction to Spanish literature. Credit I, IV. 3 points each half-year. Mr. IMBERT

4.30-5.45 p.m., Tuesday and Friday, Room 712 Journalism. Fee \$18 each half-year

The work consists of compositions, conversations and dictations on the history of Spanish literature supplemented by the reading of selected works by representative authors. Students will be required to write themes and reports in Spanish.

Text-books: Fitzmaurice-Kelly, Oxford Book of Spanish Verse (1913); Fitzmaurice-Kelly, History of Spanish Literature (preferably the French version, 1913); Calderón, Selected Plays, ed. by Macoll; Lope de Vega, Obras Escogidas; Pereda, Pedro Sánchez; Cervantes, Don Quijote, etc.

Spanish e8—Elementary course. Credit I, IV. 3 points second half-year. Mr. HAYDEN

7-8.15 p.m., Monday and Thursday, Room 610 Journalism. Fee \$18
A course for students who have no knowledge of Spanish. Equivalent to Course e1 above.

Spanish e9—Elementary course. Credit I, IV. 3 points first half-year. Mr. HAYDEN

7-8.15 p.m., Monday and Thursday, Room 610 Journalism. Fee \$18 Follows Course e8 and is planned for students who have a fair knowledge of Spanish.

The attention of students in Romance languages is called to the courses in Spoken languages, given at night, and described in a separate bulletin.

#### Science of Language

Science of language e102—The origin and development of language. Credit II. Half course second half-year. Professor Prince

4.30 p.m., Friday, Room 508 Philosophy. Fee \$12

Lectures and discussions upon the beginnings and development of language. Collateral readings on the phenomena of language; isolation, agglutination, polysyntheses, and inflection.

## Secretarial Correspondence

Secretarial correspondence e1-2—Letter writing. 3 points each half-year. Miss Barrow

4.30-5.45 p.m., Monday and Thursday, Room 709 Journalism. Fee \$18 each half-year

This course is intended not only for those desiring employment as social secretaries, but also for those wishing to gain facility in the various forms of letter writing incident to leisure and wide activity. The aim is to gain a standard of judgment for conventional forms more or less fluctuating, to establish a correctness, both in form and expression, that shall accord with the best current usage; and to develop attractiveness of style and range and power of expression. To that and there will be constant practice in letter writing, based on a careful study of the best published letters, with special attention to their style and human interest; the course will include also a survey of postal regulations, and a thorough study of the various forms of letters, both practical and friendly, formal and informal, letters upon special occasions, such as death, telegrams, cards, acknowledgments, and the more common business communications. Students will be expected to have a grasp of elementary English grammar.

#### Secretarial Studies

The University offers through the Department of Extension Teaching courses in Secretarial Studies. These normally require three years, but they may be completed in one year by college graduates.

A special circular will be sent on application to the Secretary of Columbia University.

## Semitic Languages

**Hebrew** e101-102—Biblical Hebrew. Elementary course. Grammar and selections from the Pentateuch and Psalms. Credit II. Half course each half-year. Mr. MARGOLIS

3.10-4 p.m., Tuesday and Friday, Room 301 Mines. Fee \$12 each half-year

Hebrew e103-104—Biblical Hebrew. Advanced course. Credit II. Half-course each half-year. Mr. MARGOLIS

5.10-6 p.m., Tuesday and Friday, Room 301 Mines. Fee \$12 each half-year.

During the first half-year the books of I and II Samuel will be read with special attention to Hebrew syntax. In the second half-year Mishnic Hebrew will be studied in the Pirqe Aboth (Ethics of the Fathers).

Hebrew e109-110—Jewish history and literature. Credit II. Half course each half-year. Mr. Margolis

4.10-5 p.m., Tuesday and Friday, Room 301 Mines. Fee \$12 each half-year

Consists of lectures on Jewish history from the period of the conclusion of the Babylonian Exile to the present day. Particular attention will be directed to the treatment of Jewish Post-Biblical literature, to the history of the Jews in the various lands of the Diaspora and to modern Jewish cultural movements.

#### Sociology

Sociology e141—Social problems: population and population movements. Lectures, readings and discussions. Mr. Shenton

7.40-9.30 p.m., Thursday, Room 405 Avery. Credit II, full course first half-year. Fee \$24. Credit II, half course. Fee \$12. Credit IV. 2 points. Fee \$12

A series of studies of population and population movements. Social significance of immigration and intra-migration. Application of the theories of social groupings to problems of race mixture, birth rate and death rate, urban congestion and rural social conditions.

Full course credit will be given to students doing special work under the direction of the instructor.

Sociology e142—Social problems: social betterment. Lectures, readings and discussions. Mr. Shenton

7.40-9.30 p.m., Thursday, Room 405 Avery. Credit II, full course second half-year. Fee \$24. Credit II, half course. Fee \$12. Credit IV. 2 points. Fee \$12

The development of movements for human betterment, including eugenics, euthenics, social legislation, socialized philanthropy, and social education. Problems of normal and of abnormal\_society. Constructive sociological criticism of various methods of social reform.

Full course credit requires special studies.

Sociology e143—Social institutions: institutions of component society. Lectures, readings, discussions and exercises. Mr. Shenton

7.40-9.30 p.m., Wednesday, Room 405 Avery. Credit II, full course first half-year. Fee \$24. Credit II, half course. Fee \$12. Credit IV. 2 points. Fee \$12

Origin, development and present functions of the more fundamental social institutions and their present tendencies. Those institutions having their origin in the earliest forms of society, *i.e.*, kinship, religion and politics, will be discussed during this semester.

Full course credit will be given only to students who have satisfactorily completed a study of some particular social institution and have passed an examination upon a group of specially assigned readings.

Sociology e144—Social institutions: institutions of constituent society. Lectures, readings, discussions and exercises. Mr. Shenton

7.40-9.30 p.m., Wednesday, Room 405 Avery. Credit II, full course second half-year. Fee \$24. Credit II, half course. Fee \$12. Credit IV. 2 points. Fee \$12

Origin, development, present functions and modern tendencies of the social institutions that have arisen since the beginning of civilization and directive social organization. Institutions associated with social self-control by education, law (including property and contract), social organization and collective effort.

Sociology e147-148—Social statistics. Lectures, readings and laboratory exercises. Mr. Ross

8.20-9.35 p.m, Tuesday and Friday, Room 502 Kent. Credit II, full course each half-year. Fee \$24 each half-year. Credit II, half course each half-year, Fee \$12 each half-year

The elements of statistical theory which are particularly useful in the analysis of social problems. Averages, measures of dispersion, measures of relationship, reliability of measures. Practical application of the theory of statistics to religious, educational and other social data. Analysis of data, methods of presentation, training for investigations and the preparation of statistical reports.

Sociology e151—Principles of sociology. Lectures, readings, discussions and exercises. First half-year. Mr. Shenton

7.40-9.30 p.m., Monday, Room 503 Kent. Credit II, full course. Fee \$24. Credit II, half course. Fee \$12. Credit IV. 2 points. Fee \$12

A course in social theory. The scope and methods of sociology. Theories of social evolution, social causation and organization. The development of social consciousness and of the social mind. Comparative study of various theories of social progress. Democracy and social justice.

Credit for full course will be given only to those who, in addition to the regular work, complete and are examined in a course of specially assigned readings, and who have done certain research or field work.

Text-book: Giddings, Descriptive and Historical Sociology.

Sociology e152—Historical evolution of society. Lectures, readings and discussions. Second half-year. Mr. Shenton

7.40-9.30 p.m., Monday, Room 503 Kent. Credit II, full course. Fee \$24. Credit II, half course. Fee \$12. Credit IV. 2 points. Fee \$12

The origin of man and beginnings of association. Evolution of human association and of the social mind. Studies of the integration and disintegration of various civilizations. The evolution of social control. Analysis of sovereignty. Militarism. Rise of liberty and democracy. An historical study of progress in the light of social theories.

Extra credit on conditions similar to those in Sociology e151.

Text-book: Giddings, Principles of Sociology.

Social Science: Special Course

Sociology e162—History of social reform in the United States. Lectures, readings and discussions. Dr. Levine

7.40-9.30 p.m., Tuesday, Room 611 Journalism. Credit II. Full course second half-year (e162a), fee \$24; half course second half-year (e162a), fee \$12

A survey of the industrial and economic changes during and after the Civil War: problems of currency, transportation, taxation, trusts, labor, and government; resulting economic and political efforts to meet these problems; growth of economic organizations, like granges, trades unions, cooperative societies, etc.; rise of reform parties (Greenback-Labor, Anti-Monopoly, Single Tax, The People's Party, The Progressive Party); analysis of the platforms of the Republican and Democratic parties in the light of economic and social conditions. Historical setting of socialism, syndicalism, industrial unionism, in their relation to the main currents of social reform, emphasizing the evolution of political and economic organizations and the development of new social ideas, such as governmental regulation, social insurance, a living wage, conservation, etc. The purpose of the course is to clarify the historical and economic background of the main reform tendencies of the present day.

For other courses in allied subjects see History, especially page 71 following

#### STENOGRAPHY AND TYPEWRITING

Systems: Isaac Pitman and Gregg

#### Morning, Afternoon and Evening Classes

These courses are designed for men and women who desire to become secretaries or shorthand and typewriting teachers.

A thorough presentation of the Isaac Pitman and Gregg systems will be given. The successful completion of the fundamental principles of shorthand will be followed by a presentation of phrases, contractions, commercial and legal work.

Outside reading: Columbia University is in possession of a shorthand library consisting of over 1,200 volumes which will be placed at the disposal of students in stenography.

Scientific typewriting. Touch operating as practised by rapid operators. Typewriting machines will be provided for the use of the students.

The courses described below are for the first half-year only. They will be followed in February by continuation classes so that a student can study the subject throughout the year. There will also be elementary classes formed at that time.

The courses in stenography and typewriting will be under the general supervision of Mr. F. R. Beygrau, Room 509 Journalism. Office hours, 3.45-4.15 p.m., daily (except Wednesday and Saturday).

Stenography e1—Elementary (Pitman). 6 points first half-year.

Mr. Harned

10-11 a.m. and 1-2 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 610 Journalism. Fee \$36

Stenography es1—Summer Session evening class. 2½ points. Mr. HARNED

7-8 p.m. July 6-August 13, Room 601 Journalism. Fee \$15

Typewriting es2—Summer Session evening class. 2 points. Mr. HARNED

8-9 p.m. July 6-August 13, Room 601 Journalism. Fee \$12

Stenography e3—Elementary (Pitman). 4 points first half-year. Mr. BEYGRAU

4.15-5.15 p.m., Monday, Tuesday, Thursday and Friday, Room 610 Journalism. Fee \$24

Stenography e5—Elementary (Gregg). 4 points first half-year. Mr. Brygrau

5.15-6.15 p.m., Monday, Tuesday, Thursday and Friday, Room 610 Journalism. Fee \$24

Stenography e7—Elementary (Gregg). 3 points first half-year. Mr. Harned

7.30-9.10 p.m., Tuesday and Friday, Room 601 Journalism. Fee \$18

Stenography e9—Intermediate (Pitman). 6 points first half-year.
Mr. Harned

11-12 a.m., 2-3 p.m., Monday, Tuesday, Wednesday, Thursday, and Friday, Room 610 Journalism. Fee \$36

This course is designed for those who have completed the theory in the Isaac Pitman system and who wish to gain speed, or become teachers.

Stenography e11—Intermediate (Pitman). 4 points first half-year. Mr. Harned

5.15-6.15 p.m., Monday, Tuesday, Thursday and Friday, Room 601 Journalism. Fee \$24

Stenography e13—Intermediate (Pitman). 3 points first half-year. Mr. Logan

7.30-9.10 p.m., Tuesday and Friday, Room 610 Journalism. Fee \$18

Stenography e15—Advanced. 4 points first half-year. Mr. Healey and Mr. Logan

5.15-6.15 p.m., Monday, Tuesday, Thursday and Friday, Room 405 Avery. Fee \$24

Stenography e35—Methods of teaching stenography and type-writing. 2 points first half-year. Mr. HEALEY

4.15-5.15, Tuesday and Friday, Room 405 Avery. Fee \$12

Stenography e37—Elementary stenography and methods of teaching (Gregg). 2 points first half-year. Mr. Gregg and associate 10–11.40 a.m., Saturday, Room 601 Journalism. Fee \$12

Typewriting e17—Elementary. 4 points first half-year. Mr. Logan 11-12 a.m. and 2-3 p.m., Monday, Tuesday, Wednesday, Thursday, and Friday, Room 601 Journalism. Fee \$24

Typewriting e19—Elementary. 1 point first half-year. Mr. Logan 6.15-7.15 p.m., Tuesday and Friday, Room 601 Journalism. Fee \$6

Typewriting e21—Intermediate. 4 points first half-year. Mr. Logan

10-11 a.m., and 1-2 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 601 Journalism. Fee \$24

Typewriting e23—Intermediate. 2 points first half-year. Mr. HARNED 4.15-5.15 p.m., Monday, Tuesday, Thursday and Friday, Room 601 Journalism. Fee \$12

#### Surveying, pp. 46, 47

#### Typography

Typography e1—Proof-reading and the preparation of manuscript. 2 points first half-year. Mr. BRYANT

4.30-6.10 p.m., Tuesday, Room 709 Journalism. Fee \$12

A brief outline of the history of typography will be followed by a practical explanation of present-day printing methods and a description of the different systems of hand and machine type-setting employed in modern establishments. Detailed instruction will be given as to the preparation of manuscript for the compositor, in the correct use of different fonts and gradations of type to get desired results, and in proof-reading. The work in proof-reading will include drill in the actual correction and revision of galley, page, and final proofs, with special attention to spelling, correct division of words, and uniformity in punctuation, capitalization, abbreviations, and minor matters of style. The work is planned to be of special value to authors, editors, secretarial students, and others who may be called upon to prepare manuscript for the printer.

# Zoology

Zoology e1a-2a—Elementary biology and zoology. Lectures and laboratory. Credit I, IV. 2 points each half-year. Dr. PACKARD (first half-year), Professor McGregor (second half-year)

1.30-2.30 p.m., Saturday, Room 619 Schermerhorn. (Laboratory, 2.30-4.20 p.m., Saturday, Room 618 Schermerhorn.) Fee \$12 each half-year

The earlier part of this course is designed to give the student an elementary knowledge of the basic principles of biology and the general physiology of organisms. Protoplasm, the cell, unicellular organisms, plant and animal in relation to each other and to the inorganic world are the chief topics discussed in the first half. The second term is mainly devoted to the study of the structures and adaptations of some of the more important groups of animals, with dissection of types in the laboratory. Among the types studied may be mentioned amoeba, paramecium, hydra, earthworm, lobster, grasshopper, clam, and dogfish. Practically equivalent to Zoology el in Columbia College.

A text-book will be used and collateral reading assigned.

Prerequisite: An elementary knowledge of chemistry is desirable.

#### ACADEMIC CALENDAR

1915—Sept. 22—Wednesday, Registration begins. Sept. 29—Wednesday, First half-year, 162d year, begins. Sept. 30—Thursday, Extension Teaching courses begin. Oct. 2—Saturday, Last day for changes in registration.
Oct. 19—Tuesday, Stated meeting of University Council.
Nov. 2—Tuesday, Election Day, holiday.

Nov. 24-Wednesday, Annual Thanksgiving Service in St. Paul's Chapel.

Nov. 25—Thursday, to November 27, Saturday, inclusive, Thanks-

giving holidays.

Dec. 12—Sunday, Annual Commemoration Service in St. Paul's Chapel.

Dec. 21—Tuesday, Stated meeting of University Council.

Dec. 22-Wednesday, to

1916-Jan. 4—Tuesday, inclusive, Christmas holidays.

Jan. 31-Monday, Examinations (Extension Teaching) begin. Jan. 27—Thursday, Registration second half-year begins.

9—Wednesday, Second half-year begins. University Service in St. Paul's Chapel.

Feb. 12—Saturday, Alumni Day. Feb. 15—Tuesday, Stated meeting of University Council. Feb. 19—Saturday, Last day for changes in registration. Feb. 22—Tuesday, Washington's Birthday, holiday. Apr. 18—Tuesday, Stated meeting of University Council.

Apr. 20—Thursday, to April 24, Monday, inclusive, Easter holidays. Apr. 25—Tuesday, Last day for filing applications for deficiency ex-

aminations.

May 22—Monday, Final examinations (Extension Teaching) begin.

May 30—Tuesday, Memorial Day, holiday.
June 4—Sunday, Baccalaureate Service.
June 7—Wednesday, Commencement Day.

June 19-Monday, Entrance examinations begin.

July 5—Wednesday, Seventeenth Summer Session opens. Aug. 11—Friday, Seventeenth Summer Session closes.

Sept. 20—Wednesday, Registration begins.

Sept. 27—Wednesday, First half-year, 163d year, begins.

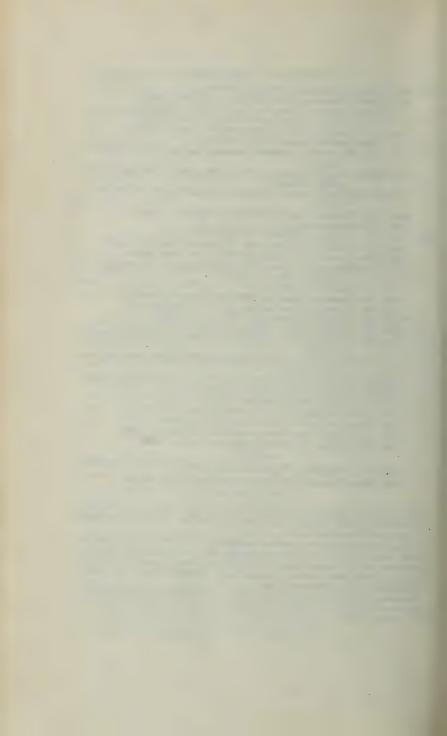
The academic year is thirty-seven weeks in length, ending on the second Wednesday in June although the actual class work is uniformly assigned

to fifteen weeks each half-year.

The exercises of the University are suspended on Election Day, Thanksgiving Day and the two following days, for two weeks at Christmas (December 22, 1915, to January 4, 1916, inclusive), on Washington's Birthday, from the Thursday before Good Friday through the following Monday, and on Memorial Day.

The complete academic calendar will be found in the University Catalogue and, so far as it refers to the students studying under any faculty

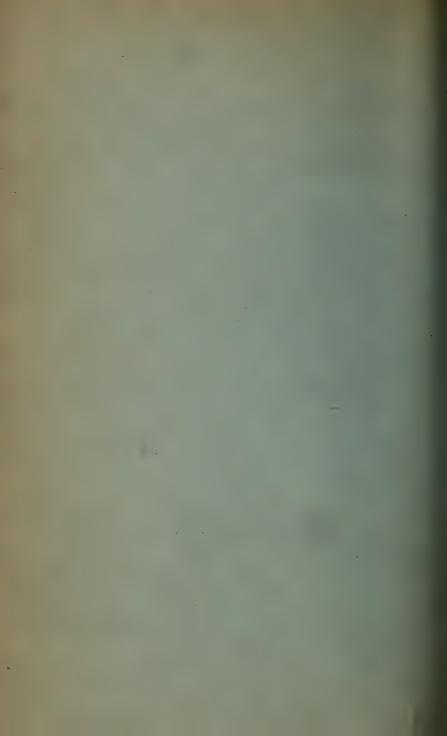
in the announcement of that faculty.











# Columbia Unibersity Bulletin of Information

(Issued 25 times during the academic year, monthly in November and December, and weekly between February and June. Entered as second-class matter at the New York, N.Y., Post Office, Dec. 22, 1900, under Act of July 16, 1894.)

#### These issues include:

- Annual Reports of the President and Treasurer to the Trustees.
- 2. The Catalogue of the University (price 25 cents) and the Announcements of the several Colleges and Schools, and of certain Divisions, issued in the spring, and relating to the work of the next year. These are made as accurate as possible, but the right is reserved to make changes in detail as circumstances require. The current number of any of these Announcements will be sent without charge upon application to the Secretary of the University.

P. P. 45,000.

The office of Extension Teaching is Room 301 University Hall.

For any courses added after June 1, see special circular to be issued in September.



1916/17

# Columbia University Bulletin of Information

# EXTENSION TEACHING

ANNOUNCEMENT

AFTERNOON, EVENING AND SATURDAY CLASSES

MORNINGSIDE HEIGHTS

1916-1917

OUT 2 4 1916

Published by
Columbia University
in the City of New York
Morningside Heights

Morningside Heights New York, N. Y.



# Columbia University in the City of New York

# **EXTENSION TEACHING**

Afternoon, Evening and Saturday Classes

SECOND HALF YEAR
FEBRUARY 9 TO JUNE 3, 1916

New York Morningside Heights

#### OFFICERS OF EXTENSION TEACHING 1915-1916

NICHOLAS MURRAY BUTLER, President of the University

#### Administrative Board

JAMES CHIDESTER EGBERT, Ph.D.

Professor of Latin
Director of Extension Teaching and the Summer Session

FREDERICK J. E. WOODBRIDGE, L.L.D.

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Dean of the Graduate Faculties

Frederick Paul Keppel, Litt.D. Dean of Columbia College

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Professor of the History of Education

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Assistant to the Director, in charge of Extramural Centres

KATHARINE C. REILEY, Ph.D.

Assistant to the Director, Adviser to Women Students

# University Officers of Administration

Frank Diehl, Fackenthal, A.B. Secretary of the University

Frank A. Dickey, A.B. Registrar of the University

CHARLES S. DANIELSON
Bursar

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### COURSES OF THE SECOND HALF-YEAR 1915-1916

The courses in Extension Teaching for the second half-year will begin

February 9, 1916.

Credit for these courses is allowed for various degrees in accordance with the regulations which are stated in the full Announcement of Extension Teaching. No examinations are required for admission, but in cases of doubt students must satisfy the Administrative Board that they can pursue the courses with advantage. All classes are open to both men and women.

Students must register in person at the Registrar's office for courses at Morningside Heights and are required to pay their fees at the time of

registration.

All students registered for Extension Teaching courses exclusively must pay a University fee of \$5 for the academic year or any part thereof.

The fee for tuition is stated after each course.

All students already registered in Extension Teaching who wish to continue their courses are required to renew their registration at the beginning of the second half-year. After February 19, every student who has not so renewed his registration and paid his fees will be excluded from the course, and for all renewals of registration thereafter a late registration fee of \$5 will be charged in addition to the regular fees for tuition. Students wishing to withdraw must notify the Registrar at once; they are liable for the fee until the end of the half-year.

After the second Saturday following the opening of either half-year, no reduction or return of fees will be made to persons who discontinue any course or courses for which they have registered, nor after that date may fees for any course dropped be applied in payment for any other course. In the case of new students who enter for the first time after the second Saturday, one week from the time of first registration will be allowed for arrangement of program. Thereafter no rebates will be

granted.

The office of the Registrar, Room 315 University Hall, will be open in addition to the regular daily hours, 9 a.m. to 5 p.m. (except Saturday) from February 3 to February 18 from 7 to 9.30 p.m. and thereafter from

7 to 9 p.m. The Saturday hours are from 9 to 12.

The office of the Bursar will be open daily from 9.30 a.m. to 3.30 p.m. and on Saturday morning from 9 to 12. This office will also be open every evening from 7 to 9 (except Saturday) from February 3 to February 18, and from February 21 to March 3 on Monday and Friday evenings only.

For further information concerning these courses or concerning any questions that may arise, students should call at the office of the Director, Room 301 University Hall, which is open from 9-5 daily, Saturday 9-4. This office will also be open evenings (except Saturdays) from

7.30 to 9, February 9 to 18.

For courses given in Bridgeport, East Orange, Freeport, Jersey City, New Rochelle, Passaic, Paterson, Scranton, Springfield (Mass.), Stam-

ford, Trenton and Yonkers, see special circulars.

Attention is called to the classes in Spoken languages which begin February 14. A special pamphlet describing these conversational courses will be sent upon application.

Courses that are marked \* are open only to students who have taken the preceding half-year or its equivalent. All other courses are open to new students without restriction except as noted in the description.

# Agriculture

Students irregularly prepared and desirous of undertaking courses in agriculture should consult the Professor of Agriculture before registering for such classes: Office, 511 Schermerhorn Hall.

Agriculture e2—Field and forage crops. Lectures and laboratory. Credit I, IV. 3 points. Fee \$18. Professor Morgan.

Section 1—4.10-5 p.m., Monday and Wednesday, (lectures), Room 505 Schermerhorn; laboratory, 10.00 a.m., Wednesday, Room 502 Schermerhorn

Section 2—7.40-9.20 p.m., Tuesday, (lectures), Room 516 Schermerhorn; laboratory, 10.00 a.m., Wednesday, Room 502 Schermerhorn

Agriculture e2a—Course e2 with laboratory work omitted. 2 points. Fee \$12. Professor Morgan

Section 1-4.10-5 p.m., Monday and Wednesday, Room 505 Schermerhorn

Section 2-7.40-9.20 p.m., Tuesday, Room 516 Schermerhorn

Agriculture e4—Soils and fertilizers. Lectures and laboratory. Credit IV. 3 points. Mr. Eaton

2.10 p.m., Monday and Friday (lectures), Room 505 Schermerhorn; laboratory, 3-5 p.m., Monday, Room 102 Schermerhorn. Fee \$18

Agriculture e4a—Soils and fertilizers. Credit IV. 3 points. Mr. Eaton

7.40-9.30 p.m., Monday and Friday (lectures), Room 619 Schermerhorn; laboratory, Room 102 Schermerhorn. Fee \$18

Agriculture e6—Principles of horticulture. Lectures and laboratory. Credit IV. 3 points. Mr. Burgdorff

4.10 p.m., Tuesday and Thursday (lectures), Room 505 Schermerhorn; laboratory, 2.10-4 p.m., Tuesday, Room 502 Schermerhorn and in the greenhouse. Fee \$18

Agriculture e6a—Principles of horticulture. Lectures and laboratory. Credit IV. 3 points. Mr. Burgdorff

7.40-9.30 p.m., Wednesday and Friday, (lectures), Room 505 Schermerhorn; laboratory, Room 502 Schermerhorn. Fee \$18

Agriculture e8—Animal husbandry. Lectures and laboratory. Credit I, IV, if specifically approved before registration. 3 points. Mr. Bowes

1.10 p.m., Tuesday and Thursday (lectures), Room 505 Schermerhorn; laboratory, 2-4 p.m., Thursday, Room 106 Schermerhorn. Fee \$18

Agriculture e8a—Course e8 with laboratory work omitted. 2 points. Mr. Bowes

7.40-9.30 p.m., Thursday, Room 516 Schermerhorn. Fee \$12

Agriculture e10—Animal husbandry. Nutrition and management. Lectures and laboratory. Credit I, IV, if specifically approved before registration. 3 points. Mr. Bowes

11 a.m., Tuesday (lectures), Room 505 Schermerhorn; laboratory, 10 a.m., Thursday, Room 106 Schermerhorn. Fee \$18

Agriculture e12—Poultry husbandry. Lectures and laboratory. Credit IV, if specifically approved before registration. 3 points Mr. Walker

9 a.m., Tuesday; 9.30-10.20 a.m., Saturday (lectures); laboratory 10.30 a.m.-12.20 p.m., Saturday, Room 516 Schermerhorn. Fee \$18

Agriculture e12a—Course e12 with laboratory work, if desired, only by special arrangement. 2 points. Mr. Walker

7.40-9.30 p.m., Monday, Room 516 Schermerhorn. Fee \$12

### Architecture

Architecture e2—Applied elements. Credit V. 8 points. Professor Harriman

8.20-10 p.m., Tuesday and Friday, Room 504 Avery. Fee \$48

Architecture e6—Shades and shadows. Credit V. 4 points. Mr. Allen

7-7.50 p.m., Monday, Wednesday and Friday, Room 407 Avery; 8-9.40 p.m., Thursday, Room 504 Avery. Fee \$24

Will not be given for less than ten students.

Architecture e8—Perspective. Credit V. 3 points. Professor Sherman

7-7.50 p.m., Monday and Wednesday, Room 408 Avery; 7.30-9.10 p.m., Thursday, Room 504 Avery. Fee \$18

Architecture e10—Descriptive geometry. Credit V. 3 points. Mr. Allen

8-8.50 p.m., Wednesday and Friday, Room 407 Avery. Fee \$18

Architecture e12—Heating and wiring. Credit V. 2 points. Mr. Pond

8-8.50 p.m., Monday, Room 407 Avery. Fee \$12 Will not be given for less than ten students.

Architecture e16—Building materials and construction. Credit V. 3 points, Mr. Walsh

8-8.50 p.m., Tuesday and Thursday, Room 407 Avery. Fee \$18

Architecture e20—Architectural engineering. 2 points. Mr. Pond 8-8.50 p.m., Wednesday and Friday, Room 408 Avery. Fee \$12 Open only with the consent of the instructor.

Architecture e28—Medieval architecture. Credit I. 1 point if taken with one other course. Curator Bach

4.10-5 p.m., Monday, Room 407 Avery. Fee \$6 Will not be given for less than ten students.

Architecture e30—Renaissance, modern and Oriental architecture.

Credit I. 1 point if taken with one other course. Curator Bach
4-4.50 p.m., Friday, Room 407 Avery. Fee \$6

Will not be given for less than ten students.

Architecture e32—Ancient ornament. Credit I, V. 2 points. Curator Bach

6-6.50 p.m., Thursday, Room 407 Avery. Fee \$12 Will not be given for less than ten students.

Architecture e38-Modern ornament. Credit I, V. 2 points. Curator Bach

6-6.50 p.m., Tuesday, Room 407 Avery. Fee \$12 Will not be given for less than ten students.

Architecture e72—Drawing. Credit V. 2 points. Professor Harriman

8-9.40 p.m., Monday and Thursday, Room 502 Avery. Fee \$12

Architecture e76—Drawing. Credit V. 2 points. Professor Harriman

8-9.40 p.m., Monday and Thursday, Room 502 Avery. Fee \$12 Course e75 repeated in the second half-year. Prerequisite: e72.

Architecture e80—Drawing. Credit V. 2 points. Professor Harriman.

8-9.40 p.m., Monday and Thursday, Room 502 Avery. Fee \$12
Architecture e71 repeated in second half-year.

# Architectural Design

The courses in Design are conducted on the basis of a progressive series of problems and sketches. These are assigned in the form of programs issued at stated intervals. The work of the students, delivered at a designated time, is passed upon by a jury of architects, the whole program being in this respect identical with that of the Society of Beaux Arts Architects. An annual registration fee of two dollars is required by this Society; this must be paid to the Chairman of the Committee on Education, 126 East 76 Street, New York City. More detailed information on this head will be given by the critics in charge of the courses.

## Tuition Fees for Design

The tuition fee in Design, regardless of course, is \$50 per year. This is payable as follows: At registration, (before the first sketch is taken), \$20; two months after registration, \$30.

Important: Students may be admitted at the beginning of the second, third, fourth, or fifth problem according to the account of the blems issued by the Society of Beau. 122, Account to a count to full fee with he reduced \$10 for each crown moreoutly completed at the time of registration and the remember of the sear will be payable as a single sum at registration.

No additional fee is required for ten-hour sketches or for archaeology problem. Sketches and remiems will be accepted only after tuition fees have been paid as indicated above.

Prerequisites for all courses. Work in the Elements of Architecture and Shades and Shadows, corresponding respectively to e1, e2, and e5, or their equivalents, such equivalents to be determined by Mr. Ware before registration on February 9 at 8 or february 12 at 2. Those who with subsequently or transmit the entitle to the smooth of the School of Allametta must also summit Descriptive Geometry, Architecture e9 to or its equivalent.

\*Architecture e62—Elementary design. Credit V. 20 hours. Mr. Ware Mr. Schulz and Mr. Hamlin

Room 202 Avery. Fee, see above

\*Architecture e64-Intermediate design. Credit V. 20 hours. Mr. Wile, Mr. Schulz and Mr. Hamlin

Room 202 Avery. Fee, see above

\*Architecture c66—Advanced design. Credit V. 20 hours. Mr. Ware Mr. Schulz and Mr. Hamlin

Room 202 Avery. Fee, see above

## Architectural Drafting

Architecture eX2—Architectural detailing. 4 hours draftingroom work per week; 2 points. Mr. Sherlock 7-9 p.m., Tuesday and Friday, Room 504 Avery. Fee \$12

## Bookkeeping

\*Bookkeeping e2—Secretarial bookkeeping. 2 points. Mr. Hughes

9.20-11 a.m., Saturday, Room 511 Journalism. Fee \$12
Bookkeeping e4—Secretarial bookkeeping. 2 points. Mr. Hughes
4-5.40 p.m., Wednesday, Room 505 Journalism. Fee \$12
A course for beginners.

### Botany

\*Botany e2—Nature and development of plants. Lectures and laboratory. Credit l, IV. 4 points. Dr. Dodge and Mr. Altenburg 7.20-8.20 p.m., Monday and Thursday, (lectures), Room 505 Schermerhorn; (laboratory) 8.20-9.50 p.m., Room 502 Schermerhorn. Fee \$24

\*Botany e2a—General botany. Lectures and laboratory. Credit I, IV. 2 points. Dr. Dodge and Mr. Altenburg

1.10 p.m., Saturday, (lectures), Room 505 Schermerhorn; (laboratory) 2.10-4 p.m., Room 502 Schermerhorn. Fee \$12

Botany e4—Edible and poisonous fungi. Credit IV. 2 points. Dr. Dodge

2 p.m., Saturday, (lectures), Room 505 Schermerhorn; (laboratory) 3-4 p.m., Room 502 Schermerhorn. Fee \$12

Botany e6—Students having completed the preceding courses may continue their work by registering for this course, the hours and character of the work to be determined upon consultation with Professor Harper. Credit I. 2 points. Fee \$12

# Chemistry

Chemistry eA2—General chemistry. Course eA1 repeated in the second half-year for students desiring to begin in February. Credit I, IV. 4 points. Mr. Haeseler and assistants

7-9.50 p.m., Tuesday, and 7-8.50 p.m., Friday, Room 301 Have-meyer. Fee \$24

Deposit for breakage \$15.

Chemistry e6—General inorganic chemistry. 3 hours classroom and 6 hours laboratory work. Credit I, IV, V. 6 points. Professor Neish and assistants

7-9.50 p.m., Tuesday, Wednesday, and Friday, Room 311 Have-meyer. Fee \$36

Deposit for breakage \$15.

Chemistry e14—Qualitative analysis. 2 hours lectures and 6 hours laboratory work. Credit I, IV, V. 5 points. Mr. Leslie

7.30-9.50 p.m., Tuesday, Wednesday, and 7-9.50 p.m., Friday, Room 511 Havemeyer. Fee \$30

Deposit for breakage \$15.

Note.—Students who have previously completed the greater part of this course may, with the consent of the Director, register for the remainder, counting it 1 to 3 points.

\*Chemistry e42—Organic chemistry. Introductory course. 3 hours classroom and 6 hours laboratory work. Credit I, IV, V. 6 points. Dr. Fisher and assistant

7-9.50 p.m., Tuesday, Wednesday and Friday, Room 413 Have-meyer. Fee \$36

Deposit for breakage \$25.

Chemistry e72—Quantitative analysis, inorganic. 2 hours classroom and 6 hours laboratory work. Credit I, IV. 5 points. Mr. Stillman

7.30-9.50 p.m., Tuesday, Wednesday, and 7-9.50 p.m., Friday, Room 504 Havemeyer. Fee \$30

Deposit for breakage \$15.

Chemistry e78—Sanitary bacteriological analysis. 2 hours classroom and 6 hours laboratory work. 5 points. Mr. Buswell

7.30-9.50 p.m., Tuesday, Wednesday, and Friday, Room 515 Havemeyer. Fee \$30

Deposit for breakage \$15.

## Civil Service

Civil service e2—General instruction. 4 points. Mr. Duncan 8.30-9.45 p.m., Wednesday and 6-7.15 p.m., Saturday, Room 713 Journalism. Fee \$24

#### COMMERCE AND INDUSTRY

## Accounting

### Evening Courses

\*Accounting e2—Elementary accounting. 2 points. Mr. Baltz 7.40-9.30 p.m., Monday, Room 511 Journalism. Fee \$12

Accounting e2a—Elementary accounting. 2 points. Mr. Baltz 7.40-9.30 p.m., Thursday, Room 512 Journalism. Fee \$12

Accounting e1 repeated in the second half-year for students with no knowledge of bookkeeping.

\*Accounting e4—Principles of accounting. 2 points. Mr. Koopman

7.40-9.30 p.m., Thursday, Room 511 Journalism. Fee \$12

Accounting e4a—Principles of accounting, 2 points, Mr. Koopman

7.40-9.30 p.m., Friday, Room 505 Journalism. Fee \$12
Accounting e3 repeated in the second half-year.

\*Accounting e6—Practical accounting. 2 points. Mr. Boyce 7.40-9.30 p.m., Friday, Room 511 Journalism. Fee \$12

Accounting e8—Cost accounting. Practice and practical cost accounting. 2 points. Mr. Nicholson

7.40-9.30 p.m., Wednesday, Room 511 Journalism. Fee \$12

\*Accounting e10—Auditing, theory and practice. 2 points. Professor Montgomery

7.40-9.30 p.m., Tuesday, Room 511 Journalism. Fee \$12

\*Accounting e14—Advanced accounting. Laboratory course. 2 points. Fee \$12. Mr. Byrnes

Section 1—7.20-9.30 p.m., Monday, Rooms 503 and 505 Journalism Section 2—7.20-9.30 p.m., Thursday, Rooms 503 and 505 Journalism

\*Accounting e16—Transportation accounting. 2 points. Mr. Boyce

7.40-9.30 p.m., Wednesday, Room 507 Journalism. Fee \$12

# Day Courses

\*Economics e172—Principles of accounting. Known in college as e72. Credit II. Half course. 2 hours throughout the year. Fee \$12. Charge for materials \$4

Section 1-5.10-6 p.m., Tuesday and Thursday, Room 511 Journalism. Professor Montgomery

Section 2-4.10-5 p.m., Tuesday and Thursday, Room 511 Journalism. Mr. Kester

\*Economics e174—Advanced accounting. Credit II. Half course. Professor Montgomery and Mr. Kester

4.10-5.30 p.m., Monday and Wednesday, Room 511 Journalism. Fee \$12

\*Economics e178—Advanced accounting laboratory course. Credit II. Half course. Mr. Kester

4.10-6.30 p.m., Friday, Room 503 Journalism. Fee \$12

#### Commercial Arithmetic

Commercial arithmetic e2—Advanced business arithmetic. 2 points. Mr. Van Tuyl

7.40-9.30 p.m., Monday, Room 609 Journalism. Fee \$12

#### Commercial Law

\*Commercial law e2—Contracts. Credit I. 2 points. Professor Gifford

7.40-9.30 p.m., Tuesday, Room 515 Kent. Fee \$12

Commercial law e4-Negotiable instruments. 2 points. Mr Currier

7.40-9.30 p.m., Wednesday, Room 515 Kent. Fee \$12

Commercial law e6—Corporation law. 2 points. Professor Wormser

7.40-9.30 p.m., Thursday, Room 405 Avery. Fee \$12

\*Commercial law e8—Torts. 2 points. Mr. Currier 7.40-9.30 p.m., Thursday, Room 614 Kent. Fee \$12

## Economics

# Evening Courses

\*Economics e2—Principles of economics. Credit I, IV. 3 points. Fee \$18

Section 1-4.30-5.45 p.m., Tuesday and Friday, Room 302 Engineering. Mr. Robinson

Section 2-7.30-10 p.m., Saturday, Room 512 Journalism. Mr. Tucker

Section 3-5-6.15 p.m., Tuesday and Friday, Room 201 East Hall. Mr. Tucker

Economics e4—Business organization and administration. 2 points, Dr. Haig

7.40-9.30 p.m., Monday, Room 512 Journalism. Fee \$12 Open only with the consent of the instructor.

Economics e6—Commercial geography. Credit I, IV. 2 points. Professor McFarlane

7.40-9.30 p.m., Thursday, Room 203 Hamilton. Fee \$12
Economics e8—Principles of economics. Credit I, IV. 3 points.
Mr. Chase

3-4.15 p.m., Tuesday and Friday, Room 603 Journalism. Fee \$18

An introductory course. Equivalent to Economics el.

Economics e14—Railway traffic and rates. 2 points. Professor G. G. Huebner

7.40-9.30 p.m., Tuesday, Room 203 Hamilton. Fee \$12

Economics e16—Practical advertising. 2 points. Mr. Hubbart 7.40-9.30 p.m., Tuesday, Room 202 Hamilton. Fee \$12

Economics e20—Export trade. 2 points. Mr. Gonzales 7.40-9.30 p.m., Wednesday, Room 611 Journalism. Fee \$12

Economics e22—Dollar exchange. 2 points. Mr. Gonzales 7.40-9.30 p.m., Friday, Room 709 Journalism. Fee \$12

Economics e26—Latin-American commercial law. 2 points. Sr. Obregon

7.40-9.30 p.m., Thursday, Room 413 Havemeyer. Fee \$12

\*Psychology e142—Psychology of advertising. Lectures, demonstrations. Credit II. Half course. Professor Hollingworth 7.40-9.30 p.m., Wednesday, Room 407 Schermerhorn. Fee \$12

# Day Courses

Economics e10—Business economics. Credit I. 3 points. Dr. Haig

2.10-3.25 p.m., Tuesday and Thursday, Room 507 Hamilton. Fee \$18

Open only to students who have had two years of college work or the equivalent.

Economics e184—Water transportation. Credit II. Half course. Professor G. G. Huebner

4.10-5 p.m., Tuesday and Thursday, Room 615 Fayerweather. Fee \$12

Psychology e192—Psychology of advertising and selling. Credit II. Half course. Professor Hollingworth

4.10-5.50 p.m., Thursday, Room 401 Schermerhorn. Fee \$12

Economics e194—Business organization and administration. Credit II. Half course. Dr. Haig

4.10-6 p.m., Monday, Room 505 Journalism. Fee \$12 Open only with the consent of the instructor.

Economics e196—Markets and marketing. Credit II. Half course. Professor S. S. Huebner

2.10-3 p.m., Monday and Friday, Room 505 Journalism. Fee \$12

Open only with the consent of the instructor.

### Finance

# Evening Courses

Finance e2—Corporation finance. 2 points. Professor Lyon 7.40-9.30 p.m., Wednesday, Room 609 Journalism. Fee \$12 Open only with the consent of the instructor.

Finance e4—Money and banking. Credit I, IV. 2 points. Professor Agger

7.40-9.30 p.m., Monday, Room 203 Hamilton. Fee \$12
Finance e10—Investments. 2 points. Mr. Lownhaupt
7.40-9.30 p.m., Tuesday, Room 214 Hamilton. Fee \$12
Open only with the consent of the instructor.

Economics e12—Real estate. 2 points. Mr. Edwards 7.40-9.30 p.m., Thursday, Room 214 Hamilton. Fee \$12 Open only with the consent of the instructor.

# Day Courses

\*Economics e162—Corporation finance. Credit II. Half course. Professor Lyon

3.10-4 p.m., Monday and Wednesday, Room 511 Journalism. Fee \$12

Open only with the consent of the instructor.

Economics e164—Banking organization and foreign exchange. Credit II. Half course. Professor Agger

4.10-5 p.m., Monday and Wednesday, Room 408 Avery. Fee \$12

Economics e182—Personal insurance. Credit II. Half course. Professor S. S. Huebner

7-9 p.m., Friday. Auditorium of the Merchants' Association, Woolworth Building. Fee \$12

Economics e186—Property insurance. Credit II. Half course. Professor S. S. Huebner

3.10-4 p.m., Monday and Friday, Room 408 Avery. Fee \$12 Open only with the consent of the instructor.

# Contemporary Literature

Contemporary literature e2—Modern European literature. Lectures. 2 points. Dr. Brewster

3.10-4.50 p.m., Wednesday, Room 612 Journalism. Fee \$12 French, Italian and German fiction.

### Drawing

Drawing eW2—Elementary freehand drawing. Six hours drafting per week. 3 points. Mr. Beans

7-10 p.m., Wednesday; 2-5 p.m., Saturday, Room 601 Engineering. Fee \$18

# Engineering

## Civil Engineering

\*Civil engineering e2—Theory of plane surveying. Equivalent to Course CE 2, required of all students in the college preparatory course preliminary to the graduate courses in Civil, Mining and Metallurgical Engineering. Credit I, V. 2 points. Mr. Krefeld 7.30-9.10 p.m., Wednesday, Room 306 Engineering. Fee \$12

Civil engineering e2a—Field problems in plane surveying. Mr. Krefeld. A short course in field work arranged as a supplement to Course e2 and open only to those registered in e2

1.30-5, ten Saturday afternoons, and one evening, beginning March 11; meet in Room 407 Engineering. Fee \$9

\*Civil engineering eX2—Theory of railroad surveying. Professor Finch

7.30-9.10 p.m., Monday, Room 306 Engineering. Fee \$12

Civil engineering eX2a—Field problems in railroad surveying. Mr. Krefeld. Similar to Course e2a arranged only for students in Course eX2

1.30-5, ten Saturday afternoons, beginning March 11, Room 407 Engineering. Fee \$9

\*Civil engineering eY2-Plain and reinforced concrete construc-

tion. Professor Finch

7.30-9.10 p.m., Thursday, Room 306 Engineering. Fee \$18

\*Civil engineering e76—Hydraulics. Professor Finch 7.30-9.10 p.m., Tuesday, Room 306 Engineering. Fee \$12

# Electrical Engineering

\*Electrical engineering e2—Principles of direct-current machinery. Lectures and laboratory. 3 points. Mr. Hehre and assistant

7.30-9.10 p.m., Tuesday and Friday, Room 302 Engineering. Fee \$18

Deposit for breakage \$10.

\*Electrical engineering e4—Principles of alternating current machinery. Lectures and laboratory. 3 points. Mr. Hehre

7.30-9.10 p.m., Monday and Thursday, Room 302 Engineering. Fee \$18. Deposit for breakage \$10.

# Highway Engineering

Highway engineering e114—Bituminous materials, bituminous surfaces, and bituminous pavements. Credit II. Half course. Professor Blanchard, Mr. Drowne, Mr. Hubbard and Mr. Smith

7.30-10 p.m., Tuesday and Thursday, January 25 to March 16, Room 402 Engineering. Fee \$12. Equals Highway engineering 103

# Mechanical Drafting

\*Drafting e2—Mechanical drafting. 6 hours lecture and drafting-room work per week. Credit Ic, V. 2 points. Professor Harrington

7.20-10 p.m., Tuesday and Friday, Room 607 Engineering. Fee \$12

\*Drafting e4—Descriptive geometry. 2 hours lectures. Credit Ic, V. 2 points. Professor Harrington

6.30-7.20 Tuesday and Friday, Room 306 Engineering. Fee \$12

Drafting e8—Specialized engineering drafting. 1 hour lecture and 5 hours drafting-room work per week. 2 points. Professor Harrington

7.20-10 p.m., Tuesday and Friday, Room 607 Engineering. Fee \$12

Sanitary Engineering

Sanitary engineering eW2—Municipal sanitation. 2 points. Mr. Brown

7.30-9.10 p.m., Thursday, Room 311 Havemeyer. Fee \$12

Water supplies, ice supplies, sewage treatment, refuse and garbage disposal, other wastes, fly and mosquito suppression, miscellaneous nuisances and rural sanitation.

Sanitary engineering eX2—Sewage treatment. Lectures. 2 points. Mr. Brown

7.30-9.10 p.m., Monday, Room 301 Engineering. Fee \$12

Sanitary engineering eY2—Sanitary design. Lectures. 2 points. Mr. Walker

7.30-9.10 p.m., Thursday, Room 301 Engineering. Fee \$12

#### Structural Mechanics

Structural mechanics eX2—Elements and applications of algebra, geometry and trigonometry. 2 points. Mr. Clark

6.10-7 p.m., Monday and Thursday, Room 408 Avery. Fee \$12

Structural mechanics eZ2—Elements of mechanics of materials. 3 points. Professor Burnside

6.10-7 p.m., Tuesday and Thursday, Room 613 Fayerweather. Fee \$18

Structural mechanics eZ4—Designs and details of framed structures. 4 points. Professor Schroeder

7-9.30 p.m., Monday and Thursday, Room 601 Engineering. Fee \$24

Open only with the consent of the instructor.

## English

### Collegiate Courses

\*English eA2—English composition. Lectures, themes and conferences. Credit I, IV. 3 points. Fee \$18

Section 1-7-8.15 p.m., Monday and Thursday, Room 610 Philosophy. Dr. Wolff

Section 2-7-8.15 p.m., Tuesday and Friday, Room 614 Kent. Mr. Haller

Section 3-3.10-4.25 p.m., Tuesday and Friday, Room 713 Journalism. Dr. Taylor

Section 4-3.10-4.25 p.m., Monday and Thursday, Room 713 Journalism. Dr. Brewster

English eA4—English composition. Lectures, themes and conferences. Credit I, IV, if taken both half-years. 1½ points. Dr. Wolff

9-10.15 a.m., Saturday, Room 611 Journalism. Fee \$9
Open only with the consent of the instructor.

English eA8—English composition. Lectures, themes and conferences. Credit I, IV. 3 points. Mr. Clark

8.20-9.35 p.m., Monday and Thursday, Room 707 Journalism. Fee \$18

Course eA1 repeated in the second half-year.

English eB2—English literature and composition. Lectures, themes and conferences. Credit I, IV. 2 points. Dr. Wolff

8.45-9.35 p.m., Monday and Thursday, Room 302 Philosophy. Fee \$12

Open only with the consent of the instructor.

English e2a—English composition. Advanced course. Lectures, themes and theme criticism. Credit I, IV. 1½ points. Dr. Wolff

11 a.m.-12.15 p.m., Saturday, Room 709 Journalism. Fee \$9 Open only with the consent of the instructor.

English e2b—The short story. English composition. Theory of fiction writing. 3 points. Fee \$18

Section 1—9.30-10.45 a.m., Saturday, Room 206 Journalism. Dr. Blanche Williams

Section 2—8.20-9.35 p.m., Monday, Room 612 Journalism. Mr. Brian Hooker

Open only with the consent of the instructor.

English e2c—The short story. Advanced course. 4 points. Dr. Blanche Williams

11 a.m.-12.15 p.m., Saturday, Room 611 Journalism. Fee \$24 Open only with the consent of the instructor.

English e4a—Dramatic composition. 3 points. Fee \$18. Mr. Hughes

Section 1—11.10 a.m.-12.25 p.m., Saturday, Room 609 Journalism Section 2—8.20-9.35 p.m., Friday, Room 609 Journalism

Open only with the consent of the instructor.

English e12a—Public speaking. Credit I, IV. 2 points. Fee \$12 Section 1—7.40-9.30 p.m., Wednesday, Room 612 Journalism. Professor Tassin

Section 2—7.40-9.30 p.m., Thursday, Room 206 Journalism. Mr. Halliday

Open only with the consent of the instructor.

English e14—Elocution. 2 points. Mrs. Davis 9-10.40 a.m., Saturday, Room 507 Journalism. Fee \$12

# See also English e38

\*English e16—English versification. Technic of English poetry. Credit I, IV. 2 points. Mr. Brian Hooker

2.10-3.50 p.m., Tuesday, Room 707 Journalism. Fee \$12

English e18—Modern literature, English and foreign. Credit I, IV. 2 points. Professor Steeves

7.25-8.15 p.m., Monday and Thursday, Room 605 Journalism. Fee \$12

Open only with the consent of the instructor.

English e20—The history of American literature. Credit I, IV. 2 points. Professor Van Doren

9-10.40 a.m., Saturday, Room 712 Journalism. Fee \$12

English e22—English literature from 1780-1830. Credit I, IV. 2 points. Professor Patterson

7.30-9.10 p.m., Wednesday, Room 512 Journalism. Fee \$12

English e24—English literature from 1830-1890. Credit I, IV. 2 points. Professor Tucker

4.10-5.50 p.m., Monday, Room 615 Kent. Fee \$12

English e36a—Shakespeare. Credit I, IV. 2 points. Professor Tassin

4.10-5.50 p.m., Thursday, Room 603 Journalism. Fee \$12

English e38—Advanced course in reading. Credit I, IV. 2 points. Professor Tassin

4.10-5.50 p.m., Friday, Room 406 Journalism. Fee \$12

English e40—The development of the English novel. 2 points. Dr. Brewster

11 a.m.-12.40 p.m., Saturday, Room 706 Philosophy. Fee \$12

English e42a—Contemporary dramatic literature. 2 points. Mr. Clayton Hamilton

10-11.40 a.m., Saturday, Room 612 Journalism. Fee \$12

English e82—Survey of English literature from the Anglo-Saxon period to the present time. Credit I, IV. 2 points for students who have already taken English A and B. Professors Trent, Fletcher and Thorndike

11 a.m.-12.40 p.m., Saturday, Room 713 Journalism. Fee \$12

# Preparatory Courses

English eV2—English for foreigners, 2 points. Fee \$12. Dr. S. W. Patterson

Section 1-4-4.50 p.m., Wednesday and Friday, Room 609 Journalism

Section 2-5-5.50 p.m., Wednesday and Friday, Room 709 Journalism.

English eW2-English composition. 3 points. Fee \$18. Mr. Duncan

Section 1-7-8.15 p.m., Monday and Thursday, Room 307 Philosophy

Section 2-1.45-3 p.m., Monday and Thursday, Room 609 Journalism

English eW4—English grammar. Course eW1 repeated in the second half-year. 3 points. Mr. Duncan

8.20-9.35 p.m., Monday and Thursday, Room 307 Philosophy. Fee \$18

English eX2—College entrance English. Composition and reading. Themes, conferences, reading of texts, tests, lectures, special oral reports and discussions. 3 points. Mr. Duncan

3.10-4.25 p.m., Monday and Thursday, Room 612 Journalism. Fee \$18

Open only with the consent of the instructor.

English eX4—College entrance English. Course eX1 repeated in the second half-year. 3 points. Dr. Gaston

7-8.15 p.m., Monday and Thursday, Room 603 Journalism. Fee \$18

\*English eY2—College entrance English. Composition and study of texts. Themes, tests, lectures and discussions. 3 points. Fee \$18. Mr. Duncan

Section 1-3.10-4.25 p.m., Tuesday and Friday, Room 612 Journalism

Section 2-7-9.30 p.m., Tuesday, Room 609 Journalism

English eY4—College entrance English. Course eY1 repeated in the second half-year. 3 points. Mr. Duncan

6-8.30 p.m., Wednesday, Room 605 Journalism. Fee \$18

English eZ2—English spelling. 1 point. Mr. Duncan 5-5.50 p.m., Wednesday and Friday, Room 609 Journalism. Fee \$6

Commercial English e2—Business English and commercial correspondence. 3 points. Mr Duncan

7.30-9.20 p.m., Saturday, Room 612 Journalism. Fee \$18

#### Fine Arts

Architecture e28-Medieval architecture. Credit I. 1 point if taken with one other course. Curator Bach

4.10-5 p.m., Monday, Room 407 Avery. Fee \$6 Will not be given for less than ten students.

Architecture e30—Renaissance, modern and Oriental architecture. Credit I. 1 point if taken with one other course. Curator Bach

4-4.50 p.m., Friday, Room 407 Avery. Fee \$6 Will not be given for less than ten students.

Architecture e32-Ancient ornament. Credit I, V. 2 points. Curator Bach

6-6.50 p.m., Thursday, Room 407 Avery. Fee \$12 Will not be given for less than ten students.

Architecture e38-Modern ornament. Credit I, V. 2 points. Curator Bach

6-6.50 p.m., Tuesday, Room 407 Avery. Fee \$12 Will not be given for less than ten students.

Architecture e42—Decorative arts. Credit I, V. 2 points. Curator Bach

4.10 p.m., Thursday, Room 407 Avery. Fee \$12 Will not be given for less than ten students.

Architecture e92—The history of painting. Credit I, V. 2 points. Curator Bach

4.10 p.m., Tuesday, Room 407 Avery. Fee \$12 Will not be given for less than ten students.

Fine arts e52a—The paintings of the Metropolitan Museum of Art. A study of the originals in the Museum, including the Morgan and Altman collections. 2 points. Fee \$12. Dr. Kriehn

Section 1—10-11.40 a.m., Saturday, Metropolitan Museum Section 2—2.30-4.10 p.m., Friday, Metropolitan Museum Section 3—10-11.40 a.m., Monday, Metropolitan Museum

Fine arts e104—History of art, Renaissance and modern. Credit II. Half course. Professor Hamlin

3.10 p.m., Tuesday and Thursday, Room 408 Avery. Fee \$12

# Geography

Geography e26—Physical geography and its human relationship. Lectures, laboratory and field excursions. Credit I, IV. 3 points. Miss Hatch

4.10-6 p.m., Tuesday and Friday, Room 401 Schermerhorn. Fee \$18

# Geology

\*Geology e2—Historical geology. The origin of the earth and its development—succession of plant and animal life. Credit I, IV. 3 points. Dr. Reeds

8.20-9.35 p.m., Tuesday and Friday, Room 401 Schermerhorn. Fee \$18

#### German

\*German eA2—Elementary course. Credit I, IV. 3 points. Fee \$18

Section 1-4.30-5.45 p.m., Tuesday and Friday, Room 510 Fayer-weather. Mr. Eyster

Section 2-8.35-9.50 p.m., Monday and Thursday, Room 611 Journalism. Mr. Werner

Section 3-7-8.15 p.m., Tuesday and Friday, Room 512 Journalism. Mr. Winfrey

\*German eA4—Elementary course. Equivalent to course eA1. Credit I, IV. 11/2 points. Mr. Bach

10-11.15 a.m., Saturday, Room 408 Avery. Fee \$9

\*German eA6—Elementary course. Equivalent to course eA2. Credit I, IV. 1½ points. Mr. Bach

11.30 a.m.-12.45 p.m., Saturday, Room 408 Avery. Fee \$9

German eA8—Elementary course. Credit I, IV. 3 points. Fee \$18

Section 1-4.30-5.45 p.m., Tuesday and Friday, Room 603 Journalism. Mr. Reichling

Section 2-7-8.15 p.m., Monday and Thursday, Room 408 Hamilton. Mr. Winfrey

A course for beginners. German eA1 repeated in the second half-year.

\*German eB2—Intermediate course. Credit I, IV. 3 points. Fee \$18

Section 1-4.30-5.45 p.m., Tuesday and Friday, Room 611 Journalism. Dr. Porterfield

Section 2-7-8.15 p.m., Monday and Thursday, Room 402 Hamilton. Mr. Werner

\*German eB4—Shorter intermediate course. Credit I, IV. 2 points. Professor Hauch

9-10.40 a.m., Saturday, Room 308 Philosophy. Fee \$12

German eB6—Intermediate course. Credit I, IV. 3 points. Mr. Reichling

4.30-5.45 p.m., Monday and Thursday, Room 611 Journalism. Fee \$18

German eB1 repeated in the second half-year. Follows eA9.

\*German eE2—Readings in science. Credit I. 3 points. Professor Schulze

7-8.15 p.m., Tuesday and Friday, Room 406 Hamilton. Fee \$18

German eE4-Readings in science. Credit I. 3 points. Mr. Gray

4.30-5.45 p.m., Tuesday and Friday, Room 405 Avery. Fee \$18
German eE1 repeated in the second half-year.

German eM2—Medical German. Elementary course. 21/2 points. Dr. Herrmann

7-9 p.m., Tuesday (or some other suitable time to be arranged), College of Physicians and Surgeons. Fee \$15

This course is mainly intended for medical students or students taking up sciences who wish to become acquainted with the elements of the German language.

This course will embrace a thorough drilling in phonetics, reading, elementary grammar and the main points of syntax as well as methodically arranged exercises in conversation. The vocabulary will be chosen with a view to enabling the student to read intelligently moderately easy medical and scientific articles and books in German.

No previous knowledge of German is expected. Textbooks: Ball, German Drillbook:

German eM4—Medical German. Advanced course. 2½ points. Dr. Herrmann

7-9 p.m., Wednesday, College of Physicians and Surgeons. Fee \$15

This course is intended to meet the needs of medical students, in the first place, and other students needing a good reading knowledge of scientific German. The idea of this course is to give an extensive practice in reading scientific articles and books in the German language and to fit the student intelligently to follow a scientific lecture in this language.

Aside from this, attention will be paid to a systematic review of the main points of the grammar, and methodically arranged exercises will give the student a certain mastery of the spoken language.

A fair knowledge of the elements of German grammar is prerequisite.

Textbooks: Ball, German Drillbook; Aschoff, Pathologische
Anatomie, Vol. II

German e4—Composition and oral practice. Intermediate course. Credit I, IV. 1½ points. Fee \$9. Dr. Betz

Section 1—11 a.m.-12.15 p.m., Saturday, Room 308 Philosophy.
Section 2—8.30-9.45 p.m., Monday, Room 713 Journalism.
Open only with the consent of the instructor.

German e6a—Introduction to the classics. Selected works of Goethe, Schiller and Lessing. Credit I, IV. 2 points. Professor Hervey

4.20-6 p.m., Wednesday, Room 406 Hamilton. Fee \$12

Open only with the consent of the instructor.

German e12—Composition and oral practice. Advanced course. Credit I, IV. 1½ points. Professor Hauch

11 a.m.-12.15 p.m., Saturday, Room 302 Philosophy. Fee \$9

German e102—History of German literature. From 1500 to 1800 A.D. Credit II. Half course. Professor Braun

9-10 a.m., Saturday. Room 302 Philosophy. Fee \$12

German e104—Goethe's Faust. Second part. Credit II. Half course. Professor Thomas

9-10.40 a.m., Saturday, Room 508 Philosophy. Fee \$12

German e148—Deutsche Stilübungen und Wortstudien. Credit II. Half course. Professor Heuser

11 a.m.-12.40 p.m., Saturday, Room 508 Philosophy. Fee \$12

The attention of students in German is called to the classes in Spoken languages, described in a special circular.

#### Greek

Greek e2—Xenophon and sight translation. Credit I, IV. 3 points. Dr. Reiley

4.30-5.45 p.m., Tuesday and Friday, Room 311 Havemeyer. Fee \$18

# History

History eX2—American history. Texts, discussions, readings, notes and maps. 3 points. Mr. Smith

11 a.m.-12.15 p.m., Tuesday and Friday, Room 609 Journalism. Fee \$18

Course eX1 repeated in the second half-year.

History eX4—Ancient history. Texts, discussions, readings, notes and maps. 3 points, Mr. Smith

4.30-5.45 p.m., Tuesday and Friday, Room 306 Engineering. Fee \$18

Course eX3 repeated in the second half-year.

History eA2—Modern and contemporary history. Lectures, readings and discussions. Credit I, IV. 3 points. Fee \$18

Section 1-4.30-5.45 p.m., Monday and Thursday, Room 712 Journalism. Professor Kendrick

Section 2-8.20-9.35 p.m., Tuesday and Friday, Room 512 Journalism. Professor Schapiro

History eA10—The development of the American nationality. Lectures, readings and discussions. Credit I, IV. 3 points. Mr. Fox

8.20-9.35 p.m., Monday and Thursday, Room 709 Journalism. Fee \$18

History e12—The history of England. Lectures, readings and discussions. Credit I, IV. 2 points. Professor Schuyler

11 a.m.-12.40 p.m., Saturday, Room 707 Journalism. Fee \$12

History e20—Contemporary events. A laboratory course. Readings, reports and discussions. Credit I. 2 points. Mr. Moon 3.10-4.50 p.m., Friday, Room 602 Journalism. Fee \$12

History e104—The political and social evolution of modern Turkey and Egypt. Lecture-study course. Credit for those taking both hours, II. Half course. Professor Gottheil

4.10-5 p.m., lecture; 5-5.50 p.m., conference, Tuesday, Room 706 Philosophy. Fee \$12

History e104a—Course e104 supplemented by assigned readings and reports. Credit II. Full course. Fee \$24

History e126—History of the Slavonic nations. Lecture-study course. Credit for those taking both hours, II. Half course. Professor Prince

4-4.50 p.m., lecture; 4.50-5.40 p.m., conference, Wednesday, Room 701 Philosophy. Fee \$12

History e146—Social and industrial history of the United States. Lecture-study course. Credit for those taking both hours, II. Half course. Mr. Gambrill

7.30-8.20 p.m., lecture; 8.20-9.10 p.m., conference, Thursday, Room 615 Kent. Fee \$12

History e150—The French Revolution and the Napoleonic era. Lecture-study course. Credit II. Half course. Professor Muzzey

11 a.m.-12.40 p.m., Saturday, Room 614 Kent. Fee \$12

History e154—Social politics in Western Europe since 1870. Lecture-study course. For those taking both hours, Credit II. Half course. Professor Hayes

4.30-5.20 p.m., lecture; 5.20-6.10 p.m., conference, Monday, Room 603 Journalism. Fee \$12

History e156—Social and industrial history of modern England. Credit II. Half course. Professor Shotwell

7.30-8.20 p.m., lecture; 8.20-9.10 p.m., conference, Tuesday, Room 615 Kent. Fee \$12

History e178—Latin America. For those taking both hours, Credit II. Half course. Professor Shepherd

7.30-8.20 p.m., lecture; 8.20-9.10 p.m., conference, Monday, Room 615 Kent. Fee \$12

History e178a—Course e178 supplemented by assigned readings and reports. Credit II. Full course. Fee \$24

# Hygiene

Hygiene e2—Hygiene and sanitation. Credit I, IV. 3 points. Professor Meylan

5-6.15 p.m., Tuesday and Thursday, Room 604 Fayerweather. Fee \$18

#### International Law

International law e104—Peace and neutrality. Lecture-study course. Credit II. Half course (e104) or full course (e104a). Professor Stowell

4.20-6 p.m., Thursday, Room 302 Philosophy. Fee \$12 (e104) or \$24 (e104a)

Open only with the consent of the instructor.

International law e120—Modern European and American diplomacy. Credit II. Half course (e120) or full-course (e120a). Mr. Munro

7.40-9.30 p.m., Wednesday, Room 603 Journalism. Fee \$12 (e120) or \$24 (e120a)

International law e152—Political and diplomatic relations of China and the Powers since 1840. Credit II, IV. Half course. Dr. Clements

4.20-6 p.m., Wednesday, Room 605 Journalism. Fee \$12

#### Latin

Latin eA6—Collegiate Latin. Livy (selections); Terence, one play. Credit I, IV. 3 points. Dr. Guernsey

4.30-5.45 p.m., Monday and Thursday, Room 709 Journalism. Fee \$18. The same as Latin A1 in Columbia College

Latin eX2—Caesar, Nepos and prose composition. Credit I for the B. S. degree if taken in conjunction with Latin eX1; Credit IV. 3 points. Miss Wye

7.30-9 p.m., Tuesday and Friday, Room 508 Philosophy. Fee \$18

Latin eY6—Latin prose composition. Latin eY5 repeated. 2 points. Miss Wye

2.10-3 p.m., Monday and Thursday, Room 611 Journalism. Fee \$12

Latin eY8—Ovid and Vergil. Latin eY1 repeated. Credit IV. 3 points. Fee \$18

Section 1-3-4.30 p.m., Tuesday and Friday, Room 611 Journalism. Miss Wye

Section 2-7-8.30 p.m., Monday and Thursday, Room 611 Journalism. Dr. Reiley

Latin e98—Latin conversation. Credit IV. 2 points. Miss Wye

5.10-6 p.m., Tuesday and Friday, Room 302 Philosophy. Fee \$12

Latin e246—Early Latin Church literature. Lectures. Credit II. Half course. Mr. Buchanan

11 a.m.-12.40 p.m., Saturday. Room 608 Philosophy. Fee \$12

Tertullian: (a) Apologeticus, (b) De Patientia, (c) De Anima. The state of the MSS. that survive. The Latin vocabulary and style of Tertullian compared with that of Cicero, Cyprian, and Augustine. Temperament and personality—his picture of public and social morality under the Roman Empire—his attitude to Greek philosophy—his criticism of Plato—his individualism and rupture with the hierarchy—last years spent among Montavist non-conformists. Progression and retrogression in language, literature and life since Tertullian.

## Library Economy

Library economy e2—Bibliography. Miss Keller 7.10-8 p.m., Friday, Room 611 Journalism. Fee \$12

\*Library economy e4—Cataloguing and classification. Miss Wilson

7.15-9.45 p.m., Tuesday and Thursday, Room 211 Library. Fee \$12

Library economy e8—Children's work. 1 point. Miss Wright 11-11.50 a.m., Saturday, Room 605 Journalism. Fee \$6
Open only with the consent of the instructor.

Library economy e22—Indexing, filing and cataloguing as applied in business. Course e21 repeated in the second half-year. 2 points. Miss Wallace

7.45-9.45 p.m., Monday, Room 601 Journalism. Fee \$12

After the first eight lectures this class will meet often at various business offices for actual experimental work.

#### Mathematics

Mathematics eX2—Algebra, elementary and intermediate course (complete). Course eX1 repeated in the second half-year. 4 points. Mr. Curt

7.25-8.15 p.m., Monday, Tuesday, Thursday and Friday, Room 712 Journalism. Fee \$24

Mathematics eX4—Algebra, intermediate course. 3 points. Mr. Bird

7-8.15 p.m., Monday and Thursday, Room 713 Journalism. Fee \$18

Mathematics eY2—Plane geometry. Course eY1 repeated in the second half-year. 4 points. Mr. Tanzola

6.10-7 p.m., Monday, Tuesday, Thursday and Friday, Room 603 Journalism. Fee \$24

Mathematics eA4—Trigonometry. Course eA1 repeated in the second half-year. Credit I, IV. 2 points. Mr. Belcher

8.20-9.10 p.m., Monday and Thursday, Room 712 Journalism. Fee \$12

Mathematics eA6—Solid geometry. Course eA3 repeated in the second half-year. Credit I, IV. 3 points. Mr. McMackin

7-8.15 p.m., Monday and Thursday, Room 707 Journalism. Fee \$18

Mathematics e2—Algebra. Course e1 repeated in the second halfyear. Credit I, IV, V. 3 points. Mr. McMackin

8.20-9.35 p.m., Monday and Thursday, Room 510 Fayerweather. Fee \$18

Mathematics e4—Analytical geometry. Course e3 repeated in the second half-year. Credit I, IV, V. 3 points. Mr. Nowlan

7-8.15 p.m., Tuesday and Friday, Room 510 Fayerweather. Fee \$18

\*Mathematics e16—Calculus. Credit I, IV, V. 3 points. Mr. Woodward

7-8.15 p.m., Tuesday and Friday, Room 615 Fayerweather. Fee \$18

\*Mathematics e76—Calculus. Credit I, IV, V. 4 points. Mr. Woodward

6.35-8.15 p.m., Monday and Thursday, Room 615 Fayerweather. Fee \$24

#### Music

Music eX2—University chorus. Professor Walter Henry Hall 8.15-9.45 p.m., Wednesday, Earl Hall. Fee for University students expecting credit \$6, otherwise no charge; for all others \$2 for the year. Credit I, 1 point with special arrangement if taken in conjunction with another course in music.

Music e6-Ear training and dictation. Credit IV. 2 points, Mr. Manning

4.10-5.50 p.m., Friday, Room 701 Journalism. Fee \$12
Open only with the consent of the instructor.

\*Music e8—Elementary harmony. Credit I, IV. 2 points. Mr. Ward

4.10-5.50 p.m., Monday, Room 701 Journalism. Fee \$12

Music e8a—Elementary harmony. Credit I, IV. 2 points. Mr. Ward

1.10-2.50 p.m., Saturday, Room 701 Journalism. Fee \$12 Music e7 repeated in the second half-year.

\*Music e10—Advanced harmony and elementary form. Credit I, IV. 2 points. Mr. Ward

4.10-5.50 p.m., Saturday, Room 701 Journalism. Fee \$12

Music e54—Introductory harmony. Credit I, IV. 2 points. Mr. Kraft

11 a.m.-12.40 p.m., Saturday, Room 701 Journalism. Fee \$12

### Philosophy

Philosophy eA2—Principles of science: concepts and problems of philosophy. Lectures, recitations and individual consultations with the instructor. Credit I, IV. 3 points. Mr. Coss

7-8.15 p.m., Tuesday and Friday, Room 603 Journalism. Fee \$18

Philosophy eA4—Principles of science: methods, deductive and inductive logic. Credit I, IV. 3 points. Dr. Owen

5-6.15 p.m., Tuesday and Friday, Room 308 Philosophy. Fee \$18

Philosophy e22—Ethical ideals, past and present. Credit I, IV. 2 points. Dr. Cooley

4.10-5.50 p.m., Wednesday, Room 611 Journalism. Fee \$12

Philosophy e136—Radical, conservative, and reactionary tendencies in present-day morals. Credit II. Full course (e136) or half course (e136a). Professor Montague

7.40-9.30 p.m., Friday, Room 307 Philosophy. Fee \$24 (full course) or \$12 (half-course)

# Photoplay Writing

Photoplay writing e2—Elementary. 3 points. Dr. Freeburg 3.10-4.25 p.m., Thursday, Room 507 Journalism. Fee \$18

Photoplay writing e4—Advanced course. 4 points. Dr. Free-burg.

3.10-4.25 p.m., Monday, Room 611 Journalism. Fee \$24

This course is open regularly only to those who have completed successfully the work in the elementary course.

It is designed to give a limited number of scenario writers an opportunity for development of individual genius, and for a general study of the finer problems and possibilities of the photoplay. There will be discussion of such topics as the psychology of dramatic characters, symbolism, allegory, the spectator's imagination, and the dramatic use of settings.

Each student is expected to write one complete feature photoplay or

several shorter works of equivalent total length.

# Physical Education

(For men students only)

Physical education eA2—Gymnastics and games. Credit I, IV. 2 points. Professor Elliott

8.30-9.20 p.m., Monday, Thursday and Saturday. Fee \$12

Physical education eY2—Swimming. 2 points. Fee \$12. Mr. Kennedy

Section 1-Monday, 8.30-9 or 9-9.30 p.m.

Section 2-Thursday, 8.30-9 or 9-9.30 p.m.

Section 3—Saturday, 8.30-9 or 9-9.30 p.m.

Physical education eZ2—Boxing. 2 points. Fee \$12. Mr. Weeman

Section 1-Thursday, 7.30-8.30 p.m.

Section 2—Thursday, 8.30-9.30 p.m.

# Physics

Physics eA2—Elementary course in general physics. 3 hours lectures and recitations, with 2 hours laboratory work. Credit I, IV. 4 points. Mr. Farwell and Mr. Ulrey

7.30-9 p.m., Monday and Thursday, Room 304 Fayerweather, lectures. The laboratory work (Room 401 Fayerweather) is done in sections of 12 students each, the number of sections and the hours of meeting depending upon the number registering for the course. In the first half-year of 1915-16 the sections met as follows:

Section 1-Monday, 5.30-7.30 p.m.

Section 2-Monday, 9-11 p.m.

Section 3-Tuesday, 4-6 p.m.

Section 4—Wednesday, 4-6 p.m.

Section 5—Thursday, 5.30-7.30 p.m.

Section 6-Thursday, 9-11 p.m.

In assigning students to laboratory sections, preference will be given to those who register first. Fee \$24

Open only with the consent of the instructor.

Physics eP2—Photo-physics and sensitometry. Lectures. 2 points. Dr. Weinrich

7.10-9 p.m., Friday, Room 304 Fayerweather. Fee \$12

Prerequisite: Course eP1 or its equivalent. Students should consult the instructor about the prerequisite.

#### **Politics**

Politics e2—American government. Credit I, IV. 3 points. Fee \$18

Section 1-4.30-5.45 p.m., Monday and Thursday, Room 306 Engineering. Professor McBain and Mr. Macmahon

Section 2—8.20-9.35 p.m., Monday and Thursday, Room 507 Journalism. Professor Sait

Politics e106—Contemporary American politics. Credit II. Half course (e106) or full course (e106a). Professor McBain

4.30-6.10 p.m., Thursday, Room 612 Journalism. Fee \$12 (half course) or \$24 (full course)

Politics e108—Comparative government and politics. Credit II. Half course (e108) or full course (e108a). Professor Sait

11 a.m.-12.40 p.m., Saturday, Room 712 Journalism. Fee \$12 (half course) or \$24 (full course)

# Psychology

Psychology e2—Elements of psychology. Lectures, demonstrations, discussions and recitations. Credit I, IV. 3 points. Fee \$18. Dr. Poffenberger

Section 1-4.30-5.45 p.m., Tuesday and Friday, Room 407a Schermerhorn

Section 2-7-8.15 p.m., Tuesday and Friday, Room 407a Schermerhorn

Open only with the consent of the instructor.

Psychology e136—Recognition and treatment of abnormal mental states. Lectures, discussions and actual clinical cases for direct study. Credit II. Half course. Dr. Bisch

4.30-6.10 p.m., Wednesday, Room 407 Schermerhorn. Fee \$12

\*Psychology e142—Psychology of advertising. Lectures, demonstrations, experiments and discussions. Credit II. Half course. Professor Hollingworth

7.40-9.30 p.m., Wednesday, Room 407 Schermerhorn. Fee \$12

Psychology e146—Applied psychology. Lectures, demonstrations and discussions. Credit II. Half course. Professor Hollingworth 4.10-5.50 p.m., Wednesday, Room 516 Schermerhorn. Fee \$12

Psychology e166—Social psychology. Lectures, discussions, and readings. Credit II. Half course. Professor Woodworth

7.20-8.10 p.m., Tuesday and Friday, Room 407 Schermerhorn. Fee \$12

Psychology e192—Psychology of advertising and selling. Credit II. Half course. Professor Hollingworth

4.10-5.50 p.m., Thursday, Room 401 Schermerhorn. Fee \$12

Psychology e236—Recognition and treatment of abnormal mental states—advanced course. Lectures, discussions, and conferences, together with abundant clinical material. Credit II. Full course. Dr. Bisch

7-8.40 p.m., Wednesday, Room 610 Journalism. Fee \$24 Open only with the consent of the instructor.

## Religion and Religious Education

Religion e6—The rise of New Testament literature. Lectures and discussions. 2 points. Mrs. Merrett

4.10-5.50 p.m., Tuesday, Room 609 Journalism. Fee \$12

### Romance Languages

All the undergraduate courses in Romance languages in Extension Teaching are under the general supervision of Professor Loiseaux

### French

\*French eA2—Elementary course. Credit I, IV. 3 points. Fee \$18

Section 1—4.30-5.45 p.m., Monday and Thursday, Room 713 Journalism. Dr. Alexander

Section 2-4.30-5.45 p.m., Tuesday and Friday, Room 713 Journalism, Mr. Olinger

Section 3-7-8.15 p.m., Monday and Thursday, Room 507 Journalism. Mr. De Bacourt

Section 4-4.30-5.45 p.m., Monday and Thursday, Room 405 Avery. Mr. De Bacourt

\*French eA4—Elementary course. Equivalent to Course eA1. Credit I, IV. 1½ points. Mr. Swann

9.30-10.45 a.m., Saturday, Room 605 Journalism. Fee \$9

\*French eA6—Elementary course. Equivalent to Course eA2. Credit I, IV. 1½ points. Mr. Swann

11 a.m.-12.15 p.m., Saturday, Room 610 Journalism. Fee \$9
This course is supplementary to French eA4.

French eA8—Elementary course. Credit I, IV. 3 points. Fee \$18

Section 1-4.30-5.45 p.m., Tuesday and Friday, Room 507 Journalism. Mr. Fortier

Section 2-7-8.15 p.m., Monday and Thursday, Room 610 Journalism. Mr. Mantz

A course for beginners. French eA1 repeated in the second half-year.

\*French eB2—Intermediate course—grammar, reading and composition. Credit I, IV. 3 points. Fee \$18

Section 1-4.30-5.45 p.m., Monday and Thursday, Room 507 Journalism. Mr. Olinger

Section 2-7-8.15 p.m., Tuesday and Friday, Room 612 Journalism. Mr. Mantz

Section 3-9-10.15 a.m., Monday and Friday, Room 609 Journalism. Mr. Olinger

\*French eB4—Intermediate course—grammar, reading and composition. Equivalent to Course eB1. Credit I, IV. 1½ points. Mr. Mantz

12.15-1.30 p.m., Saturday, Room 512 Journalism. Fee \$9

\*French eB6—Intermediate course. More advanced than eB4. Equivalent to eB2. Credit I, IV. 1½ points. Mr. Mantz

2-3.15 p.m., Saturday, Room 512 Journalism. Fee \$9

French e4—Practical course and introduction to French literature. Composition, readings, lectures. Credit I, IV. 3 points. Professor Young

4.30-5.45 p.m., Tuesday and Friday, Room 605 Journalism. Fee \$18

French e6—General survey of French literature in the seventeenth century. Credit I, IV. 3 points. Professor Loiseaux

4.30-5.45 p.m., Tuesday and Friday, Room 707 Journalism. Fee \$18

Prerequisite course e5 or an equivalent. Open only with the consent of the instructor.

French e10—Advanced composition and practice in speaking French. Credit I, IV. 3 points. Mr. Fortier

4.30-5.45 p.m., Monday and Thursday, Room 707 Journalism. Fee \$18

Open only with the consent of the instructor.

French e104—History of French literature in the eighteenth century. Credit II. Full course. Professor Loiseaux

4.30-5.45 p.m., Monday and Thursday, Room 609 Journalism. Fee \$24

Prerequisite Course e103 or an equivalent. Open only with the consent of the instructor.

### Italian

\*Italian e2—Elementary course. Credit I, IV. 3 points. Professor Livingston

7-8.15 p.m., Monday and Thursday, Room 709 Journalism. Fee \$18

\*Italian e4—Advanced course. Credit I, IV. 3 points. Professor Livingston

4.30-5.45 p.m., Monday and Thursday, Room 311 Havemeyer. Fee \$18

#### Spanish

\*Spanish e2—Elementary course. Credit I, IV. 3 points. Fee \$18

Section 1-3.10-4.25 p.m., Monday and Thursday, Room 609 Journalism. Mr. Imbert

Section 2-6.10-7.25 p.m., Tuesday and Friday, Room 507 Journalism. Mr. Hayden

Section 3-3.10-4.25 p.m., Monday and Thursday, Room 605 Journalism. Mr. Tapia

\*Spanish e4—Advanced course. Credit I, IV. 3 points. Fee \$18 Section 1—4.30-5.45 p.m., Monday and Thursday, Room 605 Journalism. Professor Gerig

Section 2-7.30-8.45 p.m., Tuesday and Friday, Room 507 Journalism. Mr. Hayden

Spanish e6—Practical course and introduction to Spanish literature. Credit I, IV. 3 points. Mr. Imbert

4.30-5.45 p.m., Tuesday and Friday, Room 712 Journalism. Fee \$18

Spanish e8—Elementary course. Credit I, IV. 3 points. Mr. Wilkins

6.10-7.25 p.m., Tuesday and Friday, Room 707 Journalism. Fee \$18

A course for students who have no knowledge of Spanish. Spanish e1 repeated in the second half-year.

If a sufficient number apply, a second section meeting at 7 p.m on Monday and Thursday will be formed.

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The attention of students in Romance languages is called to the courses in Spoken languages, given at night, and described in a separate bulletin.

# Science of Language

Science of language e102—The origin and development of language. Credit II. Half course, Professor Prince

4.30-6.10 p.m., Friday, Room 508 Philosophy. Fee \$12

## Secretarial Correspondence

Secretarial correspondence e2—Letter writing. 3 points. Miss Patton

4.30-5.45 p.m., Monday and Thursday, Room 201 East Hall. Fee \$18

Open only with the consent of the instructor.

## Semitic Languages

Hebrew e102—Biblical Hebrew. Elementary course. Grammar and selections from the Pentateuch and Psalms. Credit II. Half course. Dr. Margolis

3.10-4 p.m., Tuesday and Friday, Room 301 Mines. Fee \$12

Hebrew e104—Biblical Hebrew. Advanced course. Credit II. Half course. Dr. Margolis

5.10-6 p.m., Tuesday and Friday, Room 301 Mines. Fee \$12

Hebrew e110—Jewish history and literature. Credit II. Half course. Dr. Margolis

4.10-5 p.m., Tuesday and Friday, Room 301 Mines. Fee \$12

# Sociology

Sociology e142—Social problems: social betterment. Lectures, readings and discussions. Mr. Shenton

7.40-9.30 p.m., Thursday, Room 515 Kent. Credit II, full course. Fee \$24. Credit II, half course. Fee \$12. Credit IV, 2 points. Fee \$12

Sociology e144—Social institutions: institutions of constituent society. Lectures, readings, discussions and exercises. Mr. Shenton

7.40-9.30 p.m., Wednesday, Room 615 Kent. Credit II, full course. Fee \$24. Credit II, half course. Fee \$12. Credit IV, 2 points. Fee \$12

Consultation with the instructor before registration is advised.

Sociology e148—Social statistics. Lectures, readings and laboratory exercises. Credit II. Half course or full course. Mr. Ross

8.20-9.35 p.m., Tuesday and Friday, Room 502 Kent. Fee \$12 (half course) or \$24 (full course)

Open only with the consent of the instructor.

Sociology e152—Social evolution; principles of sociology applied to historical data. Lectures, readings and discussions. Mr. Shenton

7.40-9.30 p.m., Monday, Room 503 Kent. Credit II, full course. Fee \$24. Credit II, half course. Fee \$12. Credit IV, 2 points. Fee \$12

Social Science: Special Courses

Social science e132—Practical penal problems. Lectures, discussions and reports of first-hand investigations. Credit II. Half course. Dr. Whitin

10-12 a.m., Saturday, Room 615 Kent. (Laboratory by special assignment). Fee \$12

An introductory course, no prerequisite.

Social science e162—History of social reform in the United States. Lectures, readings and discussions. Credit II. Full course (e162) or half course (e162a). Dr. Levine

7.40-9.30 p.m., Tuesday, Room 611 Journalism. Fee \$24 (full course) or \$12 (half course)

# Stenography and Typewriting

Systems: Isaac Pitman and Gregg Morning, Afternoon and Evening Classes.

The courses in stenography and typewriting will be under the general supervision of Mr. F. R. Beygrau, Room 509 Journalism. Office hours, 3.45-4.15 p.m., daily (except Wednesday and Saturday).

Stenography e2—Elementary (Pitman). 6 points. Mr. Harned 10-11 a.m. and 1-2 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 610 Journalism. Fee \$36

Stenography e4—Elementary (Pitman). 4 points. Mr. Beygrau 4.15-5.15 p.m., Monday, Tuesday, Thursday and Friday, Room 610 Journalism. Fee \$24

Stenography e6—Elementary (Gregg). 4 points. Mr. Beygrau 5.15-6.15 p.m., Monday, Tuesday, Thursday and Friday, Room 610 Journalism. Fee \$24

Stenography e8—Elementary (Gregg). 3 points. Mr. Harned 7.30-9.10 p.m., Tuesday and Friday, Room 601 Journalism. Fee \$18

Stenography e10—Intermediate (Pitman). 6 points. Mr. Harned 11-12 a.m. and 2-3 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 610 Journalism. Fee \$36

This course is designed for those who have completed the theory in the Isaac Pitman system and who wish to gain speed, or become teachers.

Stenography e12—Intermediate (Pitman). 4 points. Mr. Harned 5.15-6.15 p.m., Monday, Tuesday, Thursday and Friday, Room 601 Journalism. Fee \$24

Stenography e14—Elementary (Pitman). 3 points. Mr. Logan 7.30-9.10 p.m., Tuesday and Friday, Room 610 Journalism. Fee \$18

Stenography e18—Intermediate (Gregg). 4 points. Mr. Shepard 4.15-5.15 p.m., Monday, Tuesday, Thursday and Friday, Room 302 Mines. Fee \$24

Stenography e20—Intermediate and advanced (Gregg). 3 points. Mr. Ingersoll

7.30-9.10 p.m., Tuesday and Friday, Room 713 Journalism. Fee \$18

Stenography e36—Methods of teaching stenography and type-writing. (Pitman). 2 points. Mr. Healey

4.15-5.15 p.m., Tuesday and Friday, Room 601 Journalism. Fee \$12

Stenography e38—Elementary stenography and methods of teaching. (Gregg). 2 points. Mr. Gregg and associate

10-11.40 a.m., Saturday, Room 601 Journalism. Fee \$12

Typewriting e18-Elementary. 4 points. Mr. Logan

11-12 a.m. and 2-3 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 601 Journalism. Fee \$24

Typewriting e20—Elementary. 1 point. Mr. Logan 6.15-7.15 p.m., Tuesday and Friday, Room 601 Journalism. Fee \$6

Typewriting e22—Intermediate. 4 points. Mr. Logan 10-11 a.m. and 1-2 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 601 Journalism. Fee \$24

#### Zoölogy

\*Zoölogy e2a—Elementary biology and zoölogy. Lectures and laboratory. Credit I, IV. 2 points. Professor McGregor

1.30-2.30 p.m., Saturday, Room 619 Schermerhorn. (Laboratory, 2.30-420 p.m., Saturday, Room 618 Schermerhorn). Fee \$12

## Special Courses Suitable for Adult Aliens

The following courses will be found especially valuable for mature aliens seeking American citizenship:

English eV2—English for foreigners. 2 points. Fee \$12. Dr. S. W. Patterson

Section 1-4-4.50 p.m., Wednesday and Friday, Room 609 Journalism

Section 2—5-5.50 p.m., Wednesday and Friday, Room 709 Journalism

English eW2—English composition. 3 points. Fee \$18. Mr. Duncan

Section 1-7-8.15 p.m., Monday and Thursday, Room 307 Philosophy

Section 2-1.45-3 p.m., Monday and Thursday, Room 609 Journalism

English eW4—English grammar. Course eW1 repeated in the second half-year. 3 points. Mr. Duncan

8.20-9.35 p.m., Monday and Thursday, Room 307 Philosophy Fee \$18

English eZ2-English spelling. 1 point. Mr. Duncan

5-5.50 p.m., Wednesday and Friday, Room 609 Journalism. Fee \$6

English e20—The history of American literature. Credit I, IV. 2 points. Professor Van Doren

9-10.40 a.m., Saturday, Room 712 Journalism. Fee \$12

History eX2—American history. Texts, discussions, readings, notes and maps. 3 points. Mr. Smith

11 a.m.-12.15 p.m., Tuesday and Friday, Room 609 Journalism. Fee \$18

Course eX1 repeated in the second half-year.

History eA10—The development of the American nationality. Lectures, readings and discussions. Credit I, IV. 3 points. Mr. Fox

8.20-9.35 p.m., Monday and Thursday, Room 709 Journalism. Fee \$18

History e146—Social and industrial history of the United States. Lecture-study course. Credit for those taking both hours, II. Half course. Mr. Gambrill

7.30-8.20 p.m., lecture; 8.20-9.10 p.m., conference, Thursday, Room 615 Kent. Fee \$12

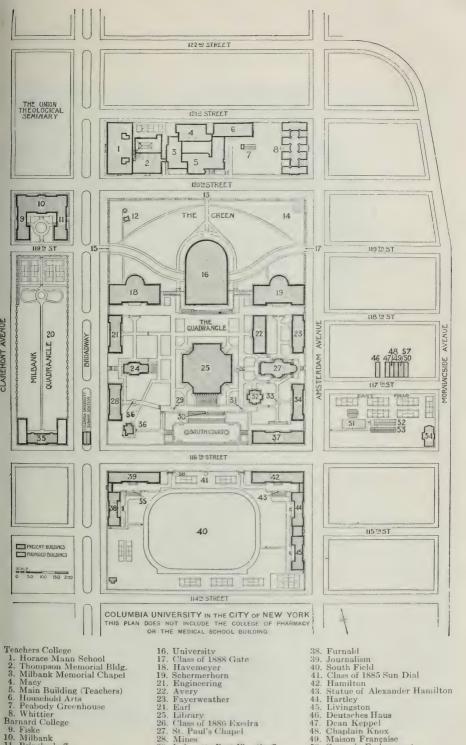
Politics e2—American government. Credit I, IV. 3 points. Fee \$18

Section 1-4.30-5.45 p.m., Monday and Thursday, Room 306 Engineering. Professor McBain and Mr. Macmahon

Section 2—8.20-9.35 p.m., Monday and Thursday, Room 507 Journalism. Professor Sait

Politics e106—Contemporary American politics. Credit II. Half course (e106) or full course (e106a). Professor McBain

4.30-6.10 p.m., Thursday, Room 612 Journalism. Fee \$12 (half course) or \$24 (full course)



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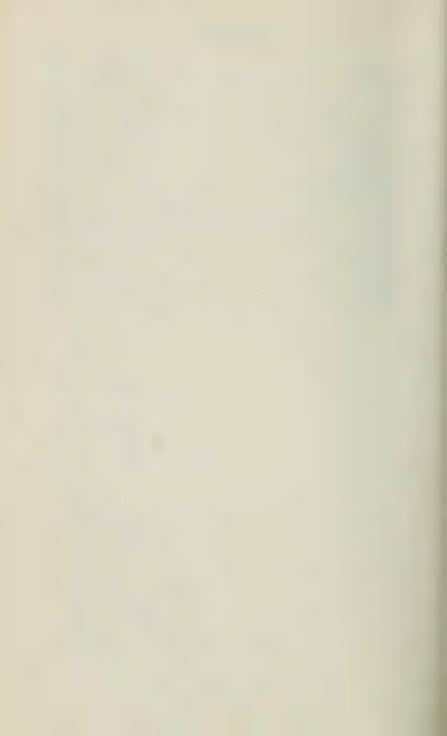
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1900-01; practice of sanitary engineering, 1901-; lecturer in sanitary engineering, Columbia, 1914-Reporter, New York World, 1891-92; proofreader and editor for Norwood Press, 1893-1909; Thomas Y. Crowell Co., editor and indexer, 1910-14; editor for World Book Company, Yonkers, 1915-B.S., Cornell, 1914 (New York State College of Agriculture); instructor, Extension Teaching, Columbia, 1914-B.S. (architecture), Columbia, 1898; A.M., 1899; instructor in mechanics, Wisconsin, 1900-03; assistant professor, 1903-09; associate in physics, Columbia, 1909-10; assistant professor and associate professor of mechanics, 1910-A.B., Minnesota, 1910; A.M., Maine, 1912; laboratory assistant, Columbia, 1912-13; instructor in sanitary chemistry, 1913-B.C.S., cum laude, New York, 1909; C.P.A., New York, 1911; member of the New York State Society of Certified Public Accountants; fellow of the American Association of Public Accountants; member of the firm of Byrnes & Baker, Certified Public Accountants; instructor, Extension Teaching, Columbia, 1914-Student, Oberlin and Leipzig Conservatories; pupil of Papperitz, Richter, and Paul; lecturer, Columbia. JAMES CHITTICK ...... Textiles Formerly general manager of the Clifton Silk Mills of James McCreery & Company; lecturer, Columbia. A.B., De Pauw, 1911; A.M., Columbia, 1912; instructor, De Pauw, 1910-11; Hebrew Technical Institute, 1913-; instructor, Extension Teaching, 1912-RANDOLPH FOSTER CLARK ..... Structural mechanics A.B., Williams, 1900; Pd.B., State Normal, 1902; principal, Valley Falls High School, N.Y., and Shelter Island High School; teacher of mathematics, Collegiate School, New York City; teacher of mathematics, DeWitt Clinton High School, 1910-Diploma, Harvard Summer School of Physical Education, 1910; diploma, Teachers College, 1911: instructor. B.S., University of California, 1895; A.D.G., École des Beaux Arts, 1900; assistant in design, Columbia, 1915. Diploma, Pratt Institute, 1899; graduate student, 1899-1901; London School of Art, 1907-08; pupil of Swan, Brangwyn, and Snell; assistant professor, Columbia.

1909; assistant, lecturer and instructor, 1911-

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Diploma, Boston Normal School of Gymnastics, 1893; instructor, Columbia.  Daniel B. Duncan
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Austin P. Evans
A.B., Cornell, 1911; Ph.D., 1916; assistant instructor, 1912-15; instructor, Columbia,
1915-
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JOHN LAWRENCE GERIG
WINIFRED STUART GIBBS

RALPH W. GIFFORD..... A.B., Harvard, 1892; LL.B., 1901; A.M. (honorary), Yale, 1912; LL.D., Fordham. 1912; admitted to New York Bar, 1902; in active practice, 1902-08; professor and Pro-Dean of School of Law, Fordham, 1907-12; professor, Yale, 1912-14; lecturer, Columbia, 1909-10; associate, 1913-14; professor, 1914-State Inspector of Training Schools for Nurses, New York State, 1910; assistant professor, Columbia. A.B., Columbia, 1881; Ph.D., Leipzig, 1886; lecturer, Syriac language and literature. Columbia, 1886-87; professor of Rabbinical literature, 1887-92; professor of Rabbinical literature and the Semitic languages, 1892-Frederick S. Goucher.... A.B., Yale, 1911; A.M., 1912; assistant, Columbia, 1912-A.B., Goucher, 1907; Training School for Children's Librarians, 1908; children's librarian, City Park Branch, Brooklyn Public Library, 1908-09; librarian, Children's Library, Cleveland, 1909-10; playground worker, story telling, 1910-JESSE M. GRAY... A.B., Olivet, 1904; A.M., Columbia, 1913; assistant, Olivet, 1902-04; head of German department, Blair Academy, 1904-12; instructor, Columbia, 1914-; Summer Session, 1914-ROSCOE GUERNSEY..... A.B., Union, 1896; Ph.D., Johns Hopkins, 1901; tutor, instructor and assistant professor in classical philology, Columbia, 1903-Diploma, Teachers College, 1913; instructor. B.S., Columbia, 1911; A.M., 1915; assistant professor. PAUL C. HAESELER..... B.S., Chicago, 1911; laboratory assistant, assistant and instructor, Columbia, 1911-; instructor, Adelphi, 1913-14. A.B., Ohio Wesleyan, 1908; A.M., Illinois, 1909; Ph.D., Columbia, 1914; instructor and assistant professor, Columbia, 1912-; assistant editor, Political Science Quarterly, 1912-14; expert, Committee on Taxation of the City of New York, 1914-16. WALTER HENRY HALL.... Student, Royal Academy of Music, London, 1878-82; organist and choirmaster, St. Luke's Church, Germantown, Philadelphia, 1885-90; St. Peter's, Albany, 1890-92; Heavenly Rest, New York, 1893-97; St. James's Church, New York, 1897-1913; conductor of Brooklyn Oratorio Society, 1893-; conductor of University Chorus, Columbia, 1910; professor of choral and church music, 1913-; conductor, Mozart Society, New York, 1914-A.B., Amherst, 1908; A.M., Columbia, 1911; Ph.D., 1916; instructor, Amherst, 1908-09; assistant and instructor, Columbia, 1909-ERNEST M. HALLIDAY..... A.B., Michigan, 1904; LL.B., 1906; A.M., Columbia, 1913; instructor, Illinois, 1906-07; associate, 1907-13; instructor, Extension Teaching, Columbia, 1912-; instructor, Summer Session, 1915-CLAYTON HAMILTON.... A.B., Brooklyn Polytechnic Institute, 1900; A.M., Columbia, 1901; tutor, 1901-04; dramatic editor, The Bookman and Voque; author of Theory of the Theatre, fifth edition,

Studies in Stagecraft, etc.; member of the National Institute of Arts and Letters.

A.B., Amherst, 1910; B.Arch., Columbia, 1914; instructor, New York School of Fine and Applied Art, 1913-14; assistant in design, Columbia, 1915-A.B., Cornell, 1907; assistant principal, Cando High School, N. D, 1907-08; commercial and legal stenographer and secretary, 1908-12; instructor of shorthand and typewriting (evening classes), West Side and East Side Young Men's Christian Association, New York, 1910-14; principal, Young Men's Christian Association Day School, 1912-13; instructor, Summer Session, Columbia, 1911-; instructor, Extension Teaching, 1913-Gates College, 1886-88; instructor in academy, 1889-91; professor of botany and geology, Lake Forest, 1891-98; professor of botany, Wisconsin, 1898-1911; Torrey professor of botany, Columbia, 1911-Massachusetts Institute of Technology, 1880-91; instructor, associate and assistant professor, Columbia, 1891-C.E., Columbia, 1889; assistant, tutor, instructor and assistant professor, 1894-A.B., Hendrix, 1915; instructor, Southern University Academy, Greensboro, Ala., 1915-16. A.B., Toronto, 1907; A.M., Columbia, 1909; Ph.D., 1916; instructor, Horace Mann, School, 1907-11; instructor, Rutgers, 1911-14; assistant professor, 1914-; instructor, Summer Session, Columbia, 1913; instructor, Extension Teaching, 1912-14, 15-PHILIP MESERVE HAYDEN..... A.B., Tufts, 1903; A.M., Columbia, 1913; instructor, Tufts, 1903-10; professor, 1910-14; instructor, Summer Session, Columbia, 1915; lecturer, 1915-CARLTON HAYES..... A.B., Columbia, 1904; A.M., 1905; Ph.D., 1909; lecturer, assistant professor, associate professor, 1907-; instructor, Summer Session, Chicago, 1911. B.S., Valparaiso, 1907; A.M., Coe, 1912; shorthand reporter, Iowa, 1892-99; editor, Business Journal, New York City, 1900-04; teacher, High School of Commerce, 1904-; Horace G. Healey..... instructor, Summer Session, Columbia, 1915-E.E., Columbia, 1908; tutor, instructor and assistant professor, 1909-B.A., Hunter; founder and managing director, Children's Educational Theatre, New York City. Adolf F. Herrmann.... Ph.D., Kiel, 1908; professor, Acadia University, 1913-14. WILLIAM ADDISON HERVEY.... A.B., Columbia, 1893; A.M., 1894; tutor, instructor, adjunct professor, associate professor, professor, 1896-; registrar, 1908-13. A.B., Columbia, 1901; A.M., 1902; assistant, lecturer, tutor, instructor and assistant professor, 1902-Frederick C. Hicks..... ....Library economy Ph.B., Colgate, 1898; LL.B., Georgetown, 1901; A.M., Brown, 1907; Library of Congress, 1898–1904; librarian, United States Naval War College, 1905–08; assistant librarian, Brooklyn Public Library, 1908–09; superintendent of reading room, assistant

librarian, law librarian, Columbia, 1910-

- FRANK ERNEST HILL. English
  A.B., Leland Stanford Jr., 1911; A.M., 1914; assistant, Illinois, 1912-13; instructor, Leland Stanford Jr., 1913-16.

46	EMILENDION ILMOHING
B.S., Mercer, English, Norman I English, Industrial Science, Golumbia,	KENDRICK
EDWARD T. KENNE Instructor in sv	DY
JOSEPHINE HEMENY A.B., Pritchet lecturer, Golumbia.	WAY KENYON
A.B., Yale, 19 assistant professor,	
assistant, Columbia	
B.S., Ohio No	MAN
B.Mus., Yale, Fellow, Columbia, Teachers College, 1	
A.B., Harvard, editor, Oxford Engl	APP
A.B., William Hopkins, 1892–94; editor, New Interna sion, Columbia, 190 Union, 1907–; prec	Jewell, 1887; Ph.D., Strassburg, 1892; instructor in history, Johns assistant professor of history, Leland Stanford Junior, 1894-98; art tional Encyclopedia, 1901-; lecturer in the history of art, Summer Ses-95-07; staff lecturer in the history of art, Woman's Art School, Cooper septor in art and archaeology, Princeton, 1911-12; lecturer in the history of Teaching, Columbia, 1912-
Organ pupil of lecturer, Columbia.	
B.S. Agricultum graduate student in in dairying, Pennsy assistant professor, Columbia, 1916; pr	re, Iowa State, 1906; M.S., Pennsylvania State, 1913; research and dairying, Iowa State, 1906-07; commercial dairy, 1907-08; instructor Ivania State, 1908-11; butter inspector, U.S. Navy, summer of 1909; 1911-13; studied agricultural conditions in Europe, 1902; Ph.D., rofessor in charge of department of dairy production and manufacture, 1913-16; assistant professor, Extension Teaching, Columbia, 1916-
AZUBAH JULIA LAT. A.B., Boston, 1 Columbia.	HAM
WILLARD R. LINE. B.S., Rocheste 1914-16.	r, 1912; M.S., Michigan, 1914; instructor in chemistry, Rochester,
A.B., Amherst,	TON

1911-14. Louis Auguste Loiseaux..... Certificat d'études primaires superiéures, Académie de Dijon, 1887; brevet d'instituteur, 1887; B. ès S., University of Dijon, 1894; tutor, instructor, adjunct professor, assistant professor and associate professor, Columbia, 1892-New York University (Finance and Commerce), 1901-05; secretary to vice-president. Electric Properties Company; bond market editor of Wall Street Journal. Author of Investment Bonds, What an Investor Ought to Know, and editor of the bond department of The Magazine of Wall Street. A.B., Dartmouth, 1901; LL.B., Harvard, 1905; member of firm of Lyon and Lilly, counsellors at law; professor, Tuck School, Dartmouth, 1910-16; assistant professor, Columbia, 1916-A.B., Richmond College (Va.), 1900; A.M., 1901; A.M., Columbia, 1905; Ph.D., 1907; associate professor of municipal science and administration, 1914-M.D., Columbia, 1903; assistant professor of physical education, Teachers College, 1910-12; University Medical Officer, 1912-MARY G. McCormick..... A.B., Cornell, 1906; A.M., Columbia, 1908; instructor. B.S., Columbia, 1910: instructor. B.S., Ohio State, 1894; A.M., Columbia, 1896; Ph.D., 1899; assistant, tutor, instructor, adjunct, assistant professor and associate professor, 1897-Teacher's Diploma, Institute of Musical Art, 1909; Artist's Diploma, 1910; student in Canada, Edinburgh, and Vienna, 1913; lecturer, Columbia. B.S., Columbia, 1907; Ph.D., Berlin University, 1915. A.B., Columbia, 1912; A.M., 1913; instructor, 1913-MELINDA I. MANCHESTER..... Household arts B.S., Columbia, 1910; A.M., 1915; steward and instructor. EDWARD B. MANNING..... Student Columbia, Macdowell, 1900-02; Humperdinck, Berlin, 1907-08; Vidal, Paris, 1910-11: Mose thal Fellow, Columbia, 1910; instructor, Oberlin, 1905-7; assistant music supervisor, Nev York Public Schools, 1908-10, 1911-12. HAROLD ELMER MANTZ.....French A.B., Michigan, 1910; Ph.D., 1915; assistant, Illinois, 1910-11; instructor, Washington, 1911-12; instructor in Extension Teaching; Columbia, 1914-MAUD MARCH......Physical education Diploma, Anderson Normal School, 1893; instructor, Columbia.

CHARLES J. MARTIN. Fine arts
Diploma, Teachers College, 1909; student, Art Students' League, 1906; Paris,

1913-14; exhibitor in Salon of 1914; instructor, Columbia.

Certificate, Pratt Institute, 1908; special diploma, Teachers College, 1914; assistant.

CHRISTABEL COE MERRETT..... Ph.B., Wesleyan, 1901; instructor, Extension Teaching, Columbia, 1915-mer Session, Harvard, 1899-1903; adjunct professor, assistant and medical director of the gymnasium and associate professor, Columbia, 1903-N. Y. Life State Teachers Certificate for High Schools, 1906; N. J. Life State Teachers Certificate for High Schools, 1913; LL.B., New York, 1912; LL.M., 1913. A.M., Columbia, 1916; assistant. professor, associate professor, Columbia, 1903-; vice-president, American Philosophical Association, 1908-; co-author, The New Realism, Macmillan, 1910. ROBERT H. MONTGOMERY..... Ex-president, American Association of Public Accountants; member, New York State Society of Certified Public Accountants; member, Pennsylvania Institute of Certified Public Accountants; author of Auditing, Theory and Practice; editor, American Business Manual; instructor, Pennsylvania, 1904-07; New York, 1906-08; member of the firm of Lybrand, Ross Brothers and Montgomery, Certified Public Accountants: assistant professor, Columbia, 1914-O. S. Morgan..... A.B., Illinois, 1905; M.S.A., Cornell, 1907; fellow in agriculture, 1907-08; Ph.D., 1909; director, New York State School of Agriculture, Alfred, N.Y., 1908-11; professor, Columbia, 1911-HENRI FRANÇOIS MULLER..... B. ès L., University of Paris, 1897; Ph.D., Columbia, 1912; tutor, instructor and assistant professor, Columbia, 1903-HENRY Fraser Munro......International law A.B., Dalhousie, 1899; A.M., Harvard, 1913; English master, Pictou Academy, Nova Scotia, 1900-11; assistant, Harvard, 1913-14; instructor, Extension Teaching, Columbia, 1914-; instructor, Summer Session, 1915-Graduate, New York Training School for Teachers, 1903; head of stenography and typewriting department, Evening High School, New York. DAVID SAVILLE MUZZEY..... A.B., Harvard, 1893; B.D., New York, 1897; Ph.D., Columbia, 1907; associate, and associate professor, 1911-A.B., Queens, 1898; A.M., Columbia, 1900; Ph.D., 1904; assistant, tutor, instructor and assistant professor, 1900-Member of New York State Society of Certified Public Accountants; fellow of Ameri-

can Association of Public Accountants; author of Factory Organization and Costs and Cost Accounting, Theory and Practice; member of the firm of J. Lee Nicholson and Company,

Certified Public Accountants.

- Frank Allen Patterson, Assistant to Director, Morningside...... English
  A.B., Syracuse, 1904; A.M., Columbia, 1907; Ph.D., 1911; assistant, Syracuse,
  1903-04; instructor in summer school, Syracuse, 1904; associate, Illinois, 1911-12;
  instructor and assistant professor, Columbia, 1912-

mission, 1915.

KATHARINE C. REILEY, Assistant to Director.....Latin and Greek A.B., Vassar, 1895; A.M., Golumbia, 1902; Ph.D., 1909; adviser for women, Furnald Hall, Summer Session, 1915- $\dots \dots Mathematics$ A.B., George Washington, 1913; University Fellow, Columbia, 1914-B.L., Denison, 1901; B.S., Columbia, 1906; Ph.D., Yale, 1909; assistant professor, Columbia. FRANK ALEXANDER ROSS.... Ph.B., Yale, 1908; A.M., Columbia, 1913; Richard Watson Gilder Fellow, 1913-15; assistant and instructor, 1915-EDWARD McCHESNEY SAIT..... A.B., Toronto, 1902; A.M., 1903; Ph.D., Columbia, 1911; lecturer in public law and in history, 1909-11; instructor in public law, 1911; assistant professor, 1912-DOROTHY SCARBOROUGH..... A.B., Baylor, 1896; A.M., 1899; student, Chicago University, 1901, 1905; instructor and assistant professor, Baylor, 1906-; student, Oxford, 1910-11; author, Fugitive Verses, 1912; student, Columbia, 1915-16. Frederick William Scholz......German A.B., Columbia, 1911; A.M., 1912; instructor (substitute), Stevens Institute of Technology, 1912; instructor, Case School of Applied Science, 1912-13; instructor, New York, 1913-; instructor, Columbia, 1916-B.S., Wisconsin, 1907; C.E., 1910; acting assistant professor of civil engineering, Washington, 1911-12; instructor and assistant professor, Columbia, 1912-B.S., College of the City of New York, 1909; B.Arch., Columbia, 1914; alumni medal of honor, 1913; Perkins Fellow, 1914. HENRY H. L. SCHULZE..... A.B., College of the City of New York, 1903; A.M., Columbia, 1905; instructor, Williams, 1907-09; tutor, instructor and assistant professor, Columbia, 1909-ROBERT LIVINGSTON SCHUYLER..... A.B., Columbia, 1903; A.M., 1904; Ph.D., 1909; instructor, Yale, 1906-10; lecturer and assistant professor, Columbia, 1910-HERBERT F. SEWARD..... Ph.B., Yale, 1900(S); certified public accountant, Connecticut; member of the staff of Lybrand, Ross Bros. & Montgomery. Diploma, Boston Cooking School, 1896; instructor, Columbia. LAMBERT A. SHEARS..... A.B., Columbia, 1912; A.M., 1914. Ph.B., Dickinson, 1906; A.M., 1909; B.D., Drew Theological, 1910; University Fellow, Columbia, 1911-12; assistant and instructor, Columbia, 1912-professor and professor, 1896-, honorary professor, University of Chile; member of the delegation of the United States to the Pan-American Scientific Congress, 1908; chief secretary of the delegation of the United States to the International Conference of American States, 1910; member of the Columbia Group Committee of the International High Com-

FRANK DEMPSTER SHERMAN
HENRY CLAPP SHERMAN
James Thomson Shotwell
PRESTON W. SLOSSON
ADA J. SMITH
MARTIN W. SMITH
RUSSELL G. SMITH
ALEXANDER GUY HOLBORN SPIERS
CAROLINE E. STACKPOLE
HARRISON ROSS STEEVES
ISABEL MAITLAND STEWART
JESSE WILBUR STILLMAN
CORNELIA H. STONE
ELLERY C. STOWELL
ANNE HERVEY STRONG
HARVEY JULIAN SWANN
Sallie B. Tannahill

AVI EXTENSION TEACHING		
JOSEPH JOHN TANZOLA		
ALGERNON TASSIN		
RUPERT TAYLOR		
EDWARD THATCHER		
ARTHUR W. THOMAS		
Calvin Thomas		
J. Franklin Thomas		
ASHLEY H. THORNDIKE		
EVELYN SMITH TOBEY		
WILLIAM P. TRENT		
SAMUEL MARION TUCKER		
MAY B. VAN ARSDALE		
SADIE B. VANDERBILT		
T. W. VAN METRE		
GEORGE HENRY VAN TUYL		

- Drexel Institute, 1900; Temple University, Philadelphia, 1901; with firm of Hering and Gregory, sanitary experts. Student, College of the City of New York, 1909-11; B. Arch., Columbia, 1915; instructor, Extension Teaching, 1915-GIZELLA J. VON WALTHERR......Stenography Studied in Paris, Berlin and Cuba. FRANK EDWIN WARD..... Pupil of Edw. MacDowell (theory), Aug Spanuth (piano), C. Rubner (orchestration), W. C. Macfarlane (organ); Mosenthal Fellow, Columbia, 1902-03; organist, 1902-13; organist, Church of the Holy Trinity, 1906-; organist, Temple Israel, 1902-; associate in music, Columbia, 1909-; associate, American Guild of Organists. B.S., Columbia, 1898; Diplomé, École des Beaux Arts, 1903; Columbia Travelling Fellowship, 1902; associate, Columbia, 1912-Assistant, Columbia. Diploma, Pratt Institute, 1898; head draftsman and designer for *The Craftsman*, 1900–06; assistant professor, Columbia. Instructor in boxing, Columbia, 1910-Yerkes Observatory, summer 1907; instructor, Stevens, 1909-11; assistant instructor, Columbia, 1906-Diploma, Teachers College, 1912; instructor. CLARENCE HUDSON WHITE..... Honorary member, Camera Club, New York; corresponding member, Vienna Camera
- HERBERT L. WHITTEMORE. Mechanics
  B.S., Wisconsin, 1903; Mech.E., 1910; instructor, Columbia, 1912
  LAWRENCE A. WILKINS Spanish
  Ph.B., Syracuse, 1904; A.M., Columbia, 1907; head of department of modern languages, Cheltenham Academy, Ogontz, Pa., 1905-06; University Scholar in Romanee languages, Columbia, 1905-07; instructor, Commercial High School, Brooklyn, 1907-10; instructor and first assistant, DeWitt Clinton High School, 1910-; chairman, department of modern languages, N. Y. Evening High School for Men, 1911-16.

A.B., Columbia, 1905; Ph.D., 1910; assistant, social legislation, 1910-; chairman,

Club; one of the founders of the Photo-secession; lecturer, Columbia.

Executive Committee, National Committee on Prisons.

# INTRODUCTORY

The statutes of the University (Section 250) define Extension Teaching as "instruction given by University officers and under the administrative supervision and control of the University, either away from the University buildings, or at the University, for the benefit of students unable to attend the regular courses of instruction."

Students. — Courses in Extension Teaching are planned for two classes of students, — first, men and women who can give only a portion of their time to study and who desire to pursue subjects included in a liberal education of the character and grade of a college or professional school, but without any reference to an academic degree, — second, those who look forward to qualifying themselves to obtain in the future academic recognition, involving acceptance of the work which they may satisfactorily complete in Extension Teaching.

Students who are duly admitted to Extension courses but are not candidates for a degree or diploma are termed non-matriculated students. Students who have completed the requirements for admission, and have been formally admitted by or in behalf of the faculty concerned as candidates for a degree or diploma, are termed matriculated students.

Courses of Instruction. — Under the direction of the University Council courses are offered in Extension Teaching which count toward the degrees of A.M. and Ph.D.

Regular courses of instruction are offered in Extension Teaching which in many instances are coördinated so as to form at least the first years of collegiate and professional work, thus providing in the evening at Morningside Heights, and elsewhere, courses in subjects which are generally offered in the Freshman, Sophomore and Junior years of college, so that students may qualify themselves for admission with advanced standing to Columbia and Barnard Colleges or other institutions as candidates for the degrees of A.B. and B.S.

There are also offered at Morningside Heights, in the evening, subjects which are required of students of the Schools of Mines, Engineering and Chemistry, so that a student may pursue some special line of scientific study or prepare himself for advanced study in these schools. Classes in these schools are open only to those who have had a preliminary course of three years in Columbia College or the equivalent. This preliminary collegiate training may be taken in part or in full in Extension Teaching in the evening by students engaged in business during the day. See pp. 7, 8.

Evening courses are offered in Architecture at Morningside Heights which correspond to courses of the Columbia University School of Architecture. See pp. 5, 6, and 20–25.

Evening classes in Business, forming a three-year course leading to a certificate and preparing for the state examination for the certificate of Certified Public Accountant, are given at Morningside Heights. A special circular describing these courses in detail will be mailed upon request. See also pp. 7 and 26 following.

A series of courses intended to equip students for the position of private secretary is also offered. The completion of these courses will require two years for high school graduates. These courses are carefully described in a special circular which will be mailed on application. See also pp. 13, 88.

Many courses are offered which aid a student to prepare for the Schools of Business, Law and Medicine or to complete his preparation for Columbia College. See pp. 7, 8, 12.

A two-year course in Practical Optics is offered in coöperation with the Department of Physics for the special training of those who expect to become optometrists. A special circular will be mailed upon request. See also pp. 12, 79.

Courses are offered in Agriculture for those who desire special work in that subject.

A large number of other courses in varied subjects is given late in the afternoon and on Saturday which repeat those in liberal studies offered in the Colleges of the University. These are given in the same manner and often by the same instructors as the regular courses. In most instances university credit is granted.

Courses covering the first year of collegiate study are given at the Long Island College Hospital. See special circular.

Lecture-study courses in certain subjects forming fifteen or thirty lectures alternating with quiz or conference hours are given at Morningside Heights and at centres when requested.

Centres for the study of choral music are maintained at Morningside Heights and Brooklyn and large choral concerts are given during the year.

The Department of Extension Teaching maintains also the Institute of Arts and Sciences, described on pp. 13, 14.

Registration. — Registration in the Winter Session begins September 20, 1916; in the Spring Session, February 1, 1917. The office of the Registrar is in University Hall, East Corridor. It is open regularly from 9 a.m. to 5 p.m., and on and after October 9, from 7 to 9 p.m., but from September 20 to October 6, 1916, and from February 1 to February 16, 1917, the office will be open in the evening from 7 until 9.30. On Saturday it is open from 9 a.m. to 12 m.

Students are permitted to attend any course once before registering. Thereafter they are required to come to the Registrar's Office in person and file a registration blank giving such information as may be required for the University records and a statement of the courses they intend to pursue. Under the statutes of the University the payment of fees constitutes part of registration. Accordingly, students should come prepared to pay the stated fees for the courses for which they desire to register.

Students are required to renew their registration in person at the beginning of the Spring Session. Students taking courses at a local centre will register at that centre in accordance with instructions given in the statements introductory to those courses.

Fees. — University fee, for students in Extension Teaching exclusively, for each year or any part thereof, \$5.

Tuition fee: the fee for each Session as announced in the description of the course.

Unless otherwise directed, students will pay all fees at the office of the Bursar, West Corridor, University Hall. This office is open daily from 9.30 a.m. to 3.30 p.m.; Saturday from 9.30 a.m. to 12 m. It will also be open every evening from 7 to 9.30 (except Saturday) from September 20 to October 6, 1916, but from October 9 to November 3, on Monday and Friday evenings only. It will be open every evening (except Saturday) from 7 to 9.30 from February 1 to February 16, 1917, but from February 19 to March 2, on Monday and Friday evenings only.

Fees must be paid before registration is completed. Under the regulations, the privileges of the University are not available to any student until he has completed his registration.

After the second Saturday following the opening of each Session, no reduction or return of fees will be made to persons who discontinue any course or courses for which they have registered. Exception to this rule may be rade in the case of those who, because of serious personal illness certified to by a physician of reputable standing, are obliged to withdraw entirely from all of their courses. In considering such applications the student will be regarded as having withdrawn upon the date on which the Registrar receives from him notice of his withdrawal, and any refund will be reckoned from that date. In the case of new students who enter for the first time after the second Saturday, one week from the time of first registration will be allowed for arrangement of program. Thereafter no refunds will be granted.

Students in courses in local centres will pay either the fee arranged by the local centre or the usual fees described above. They will pay fees to the treasurer of the local centre unless otherwise directed. Extension Teaching students taking courses in local centres who desire to receive credit for their work must fulfill all the requirements of matriculation.

Admission. — No examination is required for admission to courses offered in Extension Teaching, but in cases of doubt students must satisfy the instructors concerned that they can pursue the courses with advantage. It is expected that prospective students in all collegiate and professional courses shall have had a full secondary school education. The courses are open, unless otherwise stated, both to men and women. Admission to a course is finally determined by the Director according to the qualifications of the student, and the privilege of attendance upon a course which the student is, for any reason, found unfitted to pursue with advantage will be withdrawn.

With students who intend to begin or resume regular attendance under any faculty of the University, the question of academic credit for Extension

Teaching courses should in every case be considered and approved by the designated representative of the Committee on University Admissions. Proper blanks may be obtained in the office of Extension Teaching.

Candidates for admission as matriculated students will be permitted to register provisionally subject to the presentation of satisfactory credentials. Record of attendance will date for matriculated students from September 28, 1916, for the Winter Session, and from February 7, 1917, for those entering in the Spring Session.

A matriculated student is expected to conform to the rules for registration of the college of which he is a member. Students who expect later to apply for credit must secure approval of their schedules before registration.

Matriculated students in the various schools of the University will be allowed to attend courses in Extension Teaching in accordance with the regulations of the several schools; they must, however, register and pay the fees in the same way as other students in Extension courses.

Students should avoid assuming too heavy a program. Those working for credit will not be allowed to register for more than eight points in each Session without securing the consent of the Director.

In conformity with the custom in the University, students not otherwise enrolled when applying for registration in Extension Teaching, may be called upon to file with the Registrar a letter signed by some responsible person, testifying to the character of the student thus applying.

Students admitted from other colleges are required to present certificates of honorable dismissal,

Privileges. — Students taking six points each Session have the privileges of the Library and, in the case of men, the University Gymnasium. The privilege of residence in the dormitories is limited with Extension Teaching students to men in good standing pursuing programs aggregating not less than eight points each Session. Women students in Extension Teaching may reside in Whittier Hall under certain conditions depending upon the amount of work taken.

Attention is called to the restaurant service at the University Commons maintained for the use of students where dining-rooms for men and women are located.

A rest room for women students is located on the first floor of Philosophy Hall, open in the morning and afternoon. A coat room in the basement of the Journalism Building is provided for the use of students.

Office. — The office of Extension Teaching is Room 301 University Hall. Full information as to this department may be obtained at this office, which is open from 9 to 5 daily, Saturday 9 to 4. The office will be open in the evening, except Saturday, from 7.30 to 9.30 from September 20 to October 6, and from February 1 to February 16, 1917. When the office is not open, students are referred to the office of the Registrar, 315 University Hall.

Adviser to Women Students. — Attention is called to the appointment of an Adviser to Women Students in Extension Teaching. They are invited to apply freely to her for help and advice in regard to all matters concerned

with their welfare at the University. Those under twenty-five years of age, not living with parents or relatives, must secure her endorsement of their place of residence. Students may confer with the adviser on any afternoon, except Saturday, between 2 and 4.30, in Room 301 University Hall, or in any particular case, by special arrangement.

Location. — Intramural collegiate and professional courses will be given at Columbia University. Extramural courses will be given at the Long Island College Hospital, corner of Henry and Amity Streets, Brooklyn, at Paterson, Yonkers, Bridgeport, and at centres where there may be sufficient demand.

Classes will also be conducted at the New York Chapter of the American Institute of Banking, 138 East 35 Street.

The most convenient means of access to the University are the Subway (Broadway Branch) to 116 Street, Columbia University Station; or the Sixth or Ninth Avenue Elevated to 110 Street Station; and Broadway or Amsterdam Avenue surface lines.

Calendar and Hours. — Columbia University opens on September 27 and Extension courses begin Thursday, September 28. The academic calendar calls for thirty weeks of actual class work. The examination period for the Winter Session begins January 29. The Spring Session will open February 7. The examination period for the Spring Session begins May 21. The examinations are given in the hours usually assigned to recitations and lectures. The calendar for Extension Teaching is the academic calendar of the University, except in regard to examinations. There will be no classes in Extension Teaching on the following days: Election Day, November 7; Thanksgiving Day and the two days following (November 30, December 1 and 2); December 20 to January 2, inclusive; February 22; April 5 to 9, inclusive; May 30. There will be classes on February 12. See pp. 129, 130.

Extension courses are usually given in the afternoon after three o'clock, in the evening of every week day, and on Saturday morning.

The University Press Book Store. — The University Press Book Store situated in the Journalism Building supplies students and officers with textbooks and other needed material at stated discounts from list prices. These discounts are fixed by the Trustees of the Columbia University Press. The store will be open from 8 a.m. to 9 p.m., from September 27 to October 31. Thereafter it will be open on alternate Monday and Wednesday evenings, until 9 p.m., beginning November 1. During the Spring Session it will be open during the evening from February 7 until February 28, and thereafter on alternate Monday and Wednesday evenings beginning March 1.

Architecture. — Evening students may select courses in Architecture which are best suited to their particular needs. In order to secure a Bachelor's degree in Architecture in Columbia University it is necessary that a student should present before entering the day courses in Architecture at least two years of college work in addition to the regular high school education. These two years of collegiate study and about three years of undergraduate work in the School of Architecture may be completed at night, enabling the student,

while engaged in business throughout the day, ultimately to secure a degree in this subject, when he supplements his evening work later, after entrance requirements have been satisfied, by one year of day study. The program of collegiate preparation should include English, College Algebra, Analytical Geometry, Calculus, Philosophy, History, Politics, and as much French and German as possible. A typical arrangement of Extension work recommended for students undertaking purely architectural courses follows: (See pp. 20–25 and 53, 54, for description of courses.)

# FIRST YEAR

Winter Session	Spring Session
Architecture e1	Architecture e2
Architecture e3 or e5 or e7*	Architecture e4 or e6 or e8*

# SECOND YEAR

Architecture e71

Architecture e7 or e5*	Architecture e8 or e6*
Architecture e9 (if qualified)	Architecture e10 (if qualified)
Architecture e27	Architecture e28
Architecture e31	Architecture e32
Architecture e61	Architecture e62

Architecture e72

## THIRD YEAR

Architecture e15	Architecture e16
Architecture e29	Architecture e30
Architecture e37	Architecture e38
Architecture e63	Architecture e64

# FOURTH YEAR

Architecture e11	Architecture e12
Architecture e19	Architecture e20
Architecture e65	Architecture e66
Architecture e75	Architecture e76

Of these courses e19, e20, e27, e28, e29, e30, e37, e38 cover the same ground as corresponding courses in the School of Architecture, but are not equivalent either in prerequisites or in hours of attendance. All others are exact equivalents of day work.

This schedule does not include water color drawing, modeling, life drawing, principles of planning and composition, stereotomy, research, thesis, and mechanics, all of which are required of candidates for the degree in the School of Architecture.

<sup>·</sup> Unless taken previously.

Business. — Columbia University through its Extension Teaching Department offers evening courses in Business, including a complete series of classes for students planning to take the state examinations for Certified Public Accountant.

The object of these courses is to give a thorough training for those who desire to enter upon a business career immediately after leaving high school, and also to provide for persons already engaged during the day instruction at night in the principles of business, commerce and finance.

At the close of each Session students will receive from the Registrar a report of standing, and those who have completed the course in a manner satisfactory to the Administrative Board will receive a certificate signed by the Director of Extension Teaching. In order to be eligible for a certificate covering the entire course a student must secure 48 points. These courses are described in detail in a special circular which will be mailed upon request.

Schedule of Courses for the Certificate in Business:

### FIRST YEAR

Winter Session	Spring Session
Business e23	Business e24
Business e73	Business e74
Business e1	Business e2

# SECOND YEAR

Business e25		Business	e26	
Business e129		Business	e130	
Business e75		Business	e76	
Business English	e1	Business	English	e2

# THIRD YEAR

Business e127	Business e128
Business e131	Business e132
Business e133	Business e134
Business e7	Business e8

School of Business. — Graduates of high schools, who have satisfactorily completed in the Department of Extension Teaching work equivalent to that offered by Columbia College or Barnard College in the first two years, will be admitted to the School of Business. Students may secure the degree of B.S. in the School of Business. See special circular.

College Course. — It is possible for a student to prepare himself for admission to the senior class of Columbia College by studying in Extension Teaching at night. The last year must be taken in residence during the day. Since the possible number of combinations of subjects leading to the degree of A.B. is large, it is not feasible here to attempt to outline a fixed col-

Total ...

legiate course. The student should consult the Announcement of Columbia College in regard to required subjects and electives. The following schedule, based upon the usual entrance offering, is given merely as a suggestion of the general sequences of studies recommended for those working for a degree. Assistance in arranging programs may be secured in the office of the Director, 301 University Hall.

The length of time allotted below may be considerably shortened by electing evening courses in the Summer Session. Occasionally students who are working only a portion of the day may assume a heavier program than is given below, but those who are employed throughout the day are cautioned against electing more than eight points each Session.

FIRST YEAR		THIRD YEAR	
College P	oints	College Poin	ts
English eA1-A2	6	Philosophy	
Modern Language	6	History eA1-A2	
Mathematics	4	English e17–18	
	_	Modern Language	2
	16	-	
		1	6
SECOND YEAR		FOURTH YEAR	
English eB1-B2	4	English e23–24	4
Philosophy eA1-A2		Zoölogy e1–2	
Modern Language		Economics e1-2	
		Politics e1-2	6
	16	_	
		2	0
	FIFTH	YEAR	
		College Points	
Modern Language		6	
History			
Science			
		_	
		20	

College Entrance Course. — Mature students who are unable to attend a secondary school and other persons who are engaged in business throughout the day may prepare themselves for college by pursuing courses in Extension Teaching. These courses are not open, without special permission, to persons under eighteen. The following schedule is suggested for those who desire a complete training in subjects required for college entrance. Students may elect the complete course or only such classes as they may need.

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In order to count any course in Extension Teaching toward admission, candidates must, before beginning the course, secure written permission from

Professor A. L. Jones, Director of Admissions, Room 321 University Hall; except candidates for admission to Barnard College, who must secure written permission from the Dean of Barnard College.\*

FIRST YEAR

English eW1-W2
One elementary language
Mathematics eX3 or X4
(Algebra)

SECOND YEAR

English eX1-X2
One intermediate language
Mathematics eY1
Mathematics eA4
Chemistry eA1
Elective subjects

THIRD YEAR

English eY1-Y2 History eX1-X2 Physics eA1-A2 Freehand Drawing Mathematics eA1, eA2 Physical Geography Elective subjects

A complete list of courses given in Extension Teaching that may be offered for entrance credit follows:

Botany e1-2, for botany Chemistry eA1 or eA2, for chemistry Drawing eW1 or eW2, for drawing English eW1-W2 and eX1-X2, for English 1 English eY1-Y2, for English 2 French eA1-A2, for elementary French French eB1, for intermediate French French eB2, for advanced French Geography e25-26, for physical geography German eA1-A2, for elementary German German eB1-B2, for intermediate German German e5a-6a for advanced German Greek e1-2, for Greek a, b and a Greek e3, for Greek c History eX1 or eX2, for History d History eX3 or eX4, for History a Italian e1-2 for elementary Italian

<sup>\*</sup> While work done in University Extension Teaching courses is not primarily accepted in lieu of entrance examinations to Barnard College, entrance conditions may be removed by a grade of at least C, subsequently obtained in the appropriate extension courses. In exceptional cases, for reasons of weight, the Dean may grant permission to a student to count an extension course for entrance credit, without her having taken an entrance examination in the subject.

Latin eX1-X2 or eX8 and eX3, for second-year Latin, Latin 3 Latin eY1 or eY8, for Vergil, Latin 5

Latin eY3 or eY4, for Cicero, Latin 4

Latin eY5 or eY6, for advanced Latin prose composition, Latin 6 Mathematics eX1 or eX2 or eX3, eX6, for elementary algebra

Mathematics eX1 or eX2 or eX5 or eX6 for Algebra, quadratics and beyond

Mathematics eY1 or eY2, for plane geometry Mathematics eA1, eA3, e1 (any two), for advanced mathematics Physics eA1-A2, for elementary physics Spanish e1-2, for elementary Spanish

Zoölogy e1-2, for zoölogy

Engineering Courses. — In taking classes in engineering and allied subjects in Extension Teaching a student may adopt one of two methods in arranging his studies. (1) He may select only the class or classes in which he is especially interested, and which will be of most immediate assistance to him in his present work. In every case he must be careful that he possesses all the prerequisites for each course which he proposes to pursue. Extension Teaching offers many classes of this nature, planned especially for mature students already engaged in engineering work and at liberty to devote only a few evenings a week to professional study. Such courses do not in themselves lead to any degree, though some of them bear credit applicable to degrees, when other conditions have been fulfilled, as stated below. (2) The student may plan his work in such a way that when supplemented by day attendance, after having completed satisfactorily the entrance requirements, it will lead ultimately to a degree in engineering. No degree is given for work taken exclusively in the evening.

A student desiring to matriculate in the Schools of Mines, Engineering and Chemistry is required to present, in addition to the regular four years of the preparatory school, at least three years of collegiate work.

Extension Teaching has provided a schedule whereby a student by studying in the evening can complete this collegiate preparation. He will then be allowed to enter the Schools of Mines, Engineering and Chemistry, provided always that he has satisfied the requirements in regard to the work of the preparatory school. The collegiate course, outlined below, is that recommended by the Faculty of Applied Science in Columbia University.

In order to avoid conflicts the subjects should generally be taken in the order suggested, though in many cases the program will necessarily be rearranged to suit the needs of the individual student. All persons thinking of pursuing this course are urged to confer with the officers of Extension Teaching in Room 301 University Hall. A few subjects in the third, fourth and fifth years are not given at present in Extension Teaching, but they will be added as the need arises.

# FIRST YEAR

Winter Session		Spring Session	
English eA1	3	English eA2	3
Mathematics e1	3	Mathematics e4	3
Physical Education eA1	2	Physical Education eA2	
History eA1		History eA2	
			_
	11		11
	SECOND YE	EAR	
Mathematics e75	A	Mathematics e76	A
Philosophy eA1	2	Chemistry e6	
English e23	9	•	
_		English eB2 Economics e2	2
English eB1		Economics e2	0
Economics et	3		
	14		14
	1.1		1.1
	THIRD YE	A.D.	
		AR	
Chemistry e7		Chemistry e14	
French e3	3	French e4	3
or		or	
German eE1	3	German eE2	
Government and Industry e1.	3	Government and Industry ${\bf e2}$ .	3
			_
	11		11
	FOURTH Y	EAR	
Mechanics e1	2	Physics e6	6
Mathematics e77	3	Philosophy eA2	3
Chemistry e15	4	Mineralogy e14	3
			_
	9		12
	FIFTH YEA	AR	
Mechanical Drawing e1	2	Mechanical Drawing e2	2
Mechanical Drawing e3	2	Mechanical Drawing e4	
Physics e7		Physics e8	
Physics e49.		Physics e50	
	_		
	13		13
	1	Electives	5
		Total1	24

Students desiring to secure a baccalaureate degree in addition to the professional degree should plan to take the last year of the above course in Columbia College and should arrange to take Philosophy eA1-A2 earlier in the course.

A scholarship, affording free tuition in the graduate courses of the Schools of Mines, Engineering and Chemistry will be given each year to the student who completes the above outlined evening course with the highest record.

Law. — In order to secure the degree of Bachelor of Laws from Columbia University a student must present 94 points of collegiate study before entering the course. Students planning at some future time to study law are, therefore, advised to complete the collegiate work outlined on page 8, which, when supplemented by one course of six points, will answer the entrance requirements provided the student has also satisfactorily completed the 15 units of high school studies required for entrance to college.

Medicine. — In order to enter the College of Physicians and Surgeons in Columbia University students must present at least two years of collegiate study, amounting to 72 points if the work is done at Columbia College or in Extension Teaching, in addition to the regular high school preparation.

Students intending later to study medicine may complete the evening collegiate course outlined on page 8, which will answer the collegiate requirements for admission. It is necessary, however, that they include courses in chemistry (two years consisting of general inorganic, qualitative and organic) and physics and biology (one full year each).

Optics. — A two-year technical course in Practical Optics, leading to a certificate issued by the University, is given by Extension Teaching. The required classes in each year are mentioned in the outline given below. A special circular describing this series and giving full information concerning the entrance requirements may be obtained from the Secretary of the University. Two scholarships covering all tuition fees in Practical Optics are awarded annually by the American Optical Company of Southbridge, Massachusetts.

#### FIRST YEAR

Physics A1-A2 General elementary physics

Optometry 1-2 Theoretical optics

Optometry Z1 Algebra, geometry, and plane trigonometry

Optometry 3-4 General anatomy with special reference to the anatomy and physiology of the eye

Optometry 6 Practical optics

Optometry 8 Theoretical optometry

# SECOND YEAR

Optometry 9-10 Theoretical optics

Optometry 11-12 Physiological optics

Optometry 13-14 Practical optics

Optometry 15-16 Theoretical optometry

Optometry 17-18 Pathological conditions of the eye, general hygiene and hygiene of the eye

Optometry 19-20 Practical optometry

Secretarial Studies. — The Department of Extension Teaching has provided for men and women a series of courses given in the late afternoon and evening which will lead to a certificate in secretarial studies.

The object of these courses is properly to equip students who desire to become private secretaries or to hold important positions in offices as assistants to public officials or to persons engaged in professional pursuits. Students who undertake these courses in full must have had a high school education or its equivalent. The complete series will demand two years, although this may be reduced by attendance at Summer Sessions. Students may make use of both the late afternoon and evening courses. These are described in detail in a special circular, mailed upon request.

Courses leading to a Business Certificate in Secretarial Studies:

	Points
Stenography e1-2, Typewriting e1-2, counted as	. 8
English eA1-A2	. 6
Modern Languages	. 12
Secretarial Correspondence e1-2 or Commercial English e1-2	
Business e7-8 (Business Administration)	. 4
Elective	. 12
Total	. 48

Students may secure the degree of B.S. by pursuing secretarial studies in the School of Business. See special circular.

The Degree of Master of Arts. — Courses in Extension Teaching which have previously been approved by the Executive Committee of the University Council as being equivalent to the corresponding work regularly offered under the Faculties of Political Science, Philosophy and Pure Science may be counted toward the fulfillment of the requirements for the degree of Master of Arts. These courses are numbered 100 and above and marked Credit II.

The Institute of Arts and Sciences. — The Institute of Arts and Sciences is a division of the Department of Extension Teaching. The aim of the Institute is to provide a popular late afternoon and evening program consisting of university extension lectures, addresses and other events of a cultural nature.

The program is planned for busy men and women. Its scope includes single lectures and short series of lectures, of not over six, on history, literature, art, music, geography, science, and on current economic and social problems; it comprises also illustrated travel lectures, recitals, dramatic readings and vocal and instrumental as well as chamber music concerts.

The program is subscribed for as a whole. The annual dues are \$10 pay-

able in advance with an enrollment fee of \$5 payable only once provided the enrollment does not lapse.

A member of the Institute is entitled to free admission for himself and one other person to all the lectures and other events on the regular evening program, but in the afternoon only one person is admitted on the ticket. The ticket is transferable. Altogether the membership ticket includes free admission to approximately 250 lectures, readings, concerts, recitals, etc., throughout the season. The program continues from October to April.

The University auditoriums are used. Memberships are accepted at any time and are good for one calendar year from the first of the month nearest the time of enrollment.

A special pamphlet describing in detail the program of the Institute will be mailed upon request.

Regulations Governing Credit toward the Degrees of A.B. and B.S., Columbia College, Barnard College and Teachers College. — Students of Columbia College, Barnard College and Teachers College will be allowed to attend Extension courses which are approved by the Committees on Instruction and will be allowed to count them toward the degrees of A.B. and B.S. under the following regulations:

- 1. The election of Extension courses must be approved in advance by the Committees on Instruction.
- 2. Students will not be allowed to exceed a total of 16 hours in Barnard College, or 16 hours in Teachers College including the hours of Extension courses, save for reasons of weight and by the special permission of the Committees on Instruction.
- 3. Students desiring these courses to count toward the degrees of A.B. and B.S. must obtain at least a grade of C.
- 4. Matriculated students electing Extension courses after having obtained the approval of the Committees on Instruction must register for these courses at the office of the Registrar and pay the fees required for such courses.
- 5. No degree is given for undergraduate courses taken exclusively in Extension Teaching.

Courses in Teachers College. — Teachers College in its School of Education offers to matriculated students a number of its regular courses at hours in the afternoons and on Saturday mornings which are convenient to teachers. These courses include the history and philosophy of education, educational administration, educational psychology, secondary education, elementary education, kindergarten education, and certain courses on the methods of teaching academic subjects.

Teachers College offers also in its School of Practical Arts, at similar hours and in the evenings, some regular and a number of special classes in foods and cookery, sewing and textiles, household administration, nursing and health, household chemistry, fine arts, music, physical education, woodworking, metal-working, drawing, designing, etc. These special classes in the practical arts are open to all who are qualified to enter them.

For further information about courses for matriculated students see the

circular of Afternoon, Evening and Saturday Morning Courses which may be had on application to the Secretary of Teachers College. Special classes for non-matriculated students are described fully on pages 95–128 of this bulletin.

Relation of Extension Teaching to other University Work.—1. The requirements for the degree of Master of Arts are stated in full in a bulletin entitled Instructions for Candidates for the Degrees of Master of Arts and Doctor of Philosophy, which will be sent upon application to the Secretary of the University. This bulletin should be consulted by all students electing graduate courses.

- 2. Students taking Extension courses who desire to become candidates for the degree of Bachelor of Arts or Bachelor of Science or for professional degrees in Science, Law, Medicine, Business and Practical Arts should make application to be received as such to the Director of Admissions, Room 321 University Hall. The requirement for admission to the University as a candidate for baccalaureate degrees is set forth in the bulletin, Entrance Examinations and Admission, 1916–1917, which may be obtained on application to the Secretary of the University.
- 3. Students taking Extension courses who desire to become candidates for a diploma in teaching or the degree of Bachelor of Science in Practical Arts should make application to be received as such to the Secretary of Teachers College. For full information in reference to the requirements for admission to the School of Education or the School of Practical Arts of Teachers College, apply to the Secretary of Teachers College.
- 4. Students using Extension courses for the purpose of securing entrance credits must consult Professor Adam Leroy Jones, Room 321 University Hall. For admission to Barnard College, students should consult the Dean of Barnard College before registering.

Absences. — It is a student's duty to attend punctually each class or laboratory exercise in each course. For credit toward a degree or for a certificate of proficiency, attendance at nine-tenths of the sessions is required in addition to the proficiency attested by class work and examination.

A student may be absent without penalty in a Session as follows: from a course meeting once weekly, twice; from a course meeting twice weekly, three times; from a course meeting three times weekly, four times; from a course meeting four times weekly, five times; from a course meeting five times weekly, six times.

In case this limit is exceeded, a student receiving a grade of D shall not be entitled to credit for that course; a student receiving a grade of C or higher may submit a statement showing the cause of each absence. If, in the judgment of the Administrative Board, these causes were imperative, full or partial credit for the course may be assigned by the Director upon the recommendation of the Administrative Board, in accordance with the extent and reason of the student's absences and the standing attained in the course.

Tardiness counts as half an absence.

Examinations. — Two examinations are regularly held, one at the close of the Winter Session and the second on the termination of the course. A mid-

term report is sent to the Director by the various instructors, approximately on November 15 and March 25. For examination at special times the fee is \$5 for each course.

Students who fulfill the conditions of registration, attendance and accomplishment of work prescribed, together with the payment in full of the fee for the course, will receive a report of standing from the Registrar within three weeks after the close of each Session.

The student's performance in a course is reported according to the following grades: A, excellent; B, good; C, fair; D, poor; F, failure. In graduate courses P indicates passed; F, failure. H indicates a record of satisfactory attendance only.

Local Centres. — To facilitate the work of instruction away from the University, the Administrative Board may institute local centres. Local centres may be established wherever a local community or a local organization undertakes to offer, year by year, one or more of the Extension courses of the University. Local boards of education, teachers' associations, schools, societies and clubs desirous of offering Extension courses may be constituted local centres. In general, however, a special local committee (president, secretary, treasurer, and five members representing the particular community) is the usual organization of the local centre.

Local centres are responsible, through the local committee, for the effective arrangement of Extension courses they offer. They determine the courses in coöperation with the Director; they enlist local interest; they provide, by fees or the sale of tickets or otherwise, for all the expenses of their work—the course fee, the cost of syllabi, the travelling expenses of the lecturer, lecture-hall, janitor, printing and advertising, and when lectures are to be illustrated they must provide the lantern and operator. The Administrative Board will establish and conduct local centres where suitable arrangements may be made and sufficient guarantees secured.

# Enrollment

Year	Morningside	Extramural	Total
1910-11	922	390	1312
1911-12	1329	271	1600
1912-13	2016	296	2312
1913-14	2664	723	3387
1914-15	3407	754	4161
1915-16	3960	821	4781*

This number does not include 543 students attending Extension classes in Teachers College.

The attention of Extension Teaching students is called to the graduate, college and professional courses given during the summer in the day and evening, from July 10 to August 18. Address the Secretary of the University.

# COURSES OF INSTRUCTION

Note. — The University reserves the right to withdraw, or change any courses which are named in this statement.

Courses corresponding and equivalent to prescribed courses of Columbia College are designated by letters A, B. A1, B1, refer to the Winter Session (September-January) in such a course; A2, B2, to the Spring Session (February-May). In numbered courses, odd numbers designate the Winter Session, even numbers the Spring Session.

In the statement of each course the prerequisites are indicated except that the equivalent of the first half of a hyphenated course (e. g., Botany e1-2) is usually assumed to be a prerequisite for admission to the second half.

Credits. — The academic credit that may be awarded to students who give evidence of having completed the prerequisite work required by the several faculties is regularly indicated in connection with the statement of each course; for undergraduate courses by points, for graduate, by the terms half course and full course.

For courses numbered 100 and above, credit will be determined by the various faculties under which the student intends to apply for such recognition.

All courses marked Credit I — May be counted toward the degrees of A.B. and B.S. in all parts of the University where these degrees are given and toward appropriate diplomas in teaching. For other courses, which under certain conditions may be offered for credit by candidates for the A.B. or B.S. degree, see Credit II.

IB — May be counted toward the degrees of A.B. and B.S. in Barnard College only.

Ic — May be counted toward the degree of A.B. in Columbia College only.
All courses marked Credit II — May be offered by graduate students toward the higher degrees. Open also to undergraduates on the approval of the appropriate Committee on Instruction obtained in advance.

All courses marked Credit IV — May be counted for matriculated students in the School of Practical Arts toward the degree of B.S. See p. 14.

All courses marked Credit V — May be counted toward the appropriate degrees in the Schools of Mines, Engineering and Chemistry, and Architecture.

All courses marked Credit IX — May be counted toward the degree of B.S. in Business.

Any course numbered 100 or above may be counted for undergraduate degrees under the general rules.

The fees and points as stated with the various courses are for each Session. In the case of non-credit courses, the number of points is published merely to give a general idea of the amount of work required of the student.

# AGRICULTURE

Columbia University, through the Extension Teaching Department, offers courses in agriculture. These courses may, with the approval of the Committee on Instruction, form part of the curriculum leading to the degree of A.B. for students of Columbia College. They will also be open to students who desire to take only courses in agriculture.

It is recommended that matriculated students planning to study agriculture should enter Columbia College and take the subjects prescribed for the degree. In addition to the courses in agriculture, matriculated students should take History 55, Chemistry A, Economics 1–2, Botany 1–2, and Zoölogy 1–2.

Students irregularly prepared and desirous of undertaking courses in agriculture should consult the Professor of Agriculture, Room 511 Schermerhorn Hall, before registering for such classes.

Agriculture e1-2 — Introductory agriculture. Lectures and laboratory. Credit I, IV. 3 points each Session. Professor Morgan

9-10.50 a.m., Saturday (lectures), Room 505 Schermerhorn; laboratory 4.10-6 p.m., Wednesday, Room 502 Schermerhorn and agricultural greenhouse. Fee \$18 each Session

The object of this course is to give the student entering the study of agriculture a clear understanding of the main problems and principles of present-day scientific agriculture particularly as practised in the eastern United States. All students undertaking the study of agriculture for the first time should take at least the Winter Session of this course.

Winter Session. The essentials of crop production as affecting the American farm crops, corn, wheat, oats, barley, rye and buckwheat. Special attention will be given the following: crop rotation, fertilizers, manures, varieties, cultural methods, food values, harvesting, storage, farm machinery, seed improvement, selection, testing and cost of production.

Spring Session. The production of hay, grass, legumes, potatoes and roots. The management of hay fields, clovers, alfalfa, vetches, cow peas, cereals for hay; pastures, seeding and management; the selection, planting, cultural treatment, harvesting of potatoes; the production of beets, turnips and rape for stock food.

Laboratory work will include the study of the characteristics of the crops studied, judging and scoring of corn and other grains, testing for germination and purity, reports on special topics, pot culture in the greenhouse and excursions to industrial plants and farms.

Agriculture e1a-2a — Course e1-2 without laboratory work. By special arrangement laboratory work may be included. 2 points each Session. Fee \$12 each Session. Professor Morgan

Section 1 — 9–10.50 a.m., Saturday, Room 505 Schermerhorn Section 2 — 7.40–9.30 p.m., Tuesday, Room 516 Schermerhorn

Agriculture e3-4 — Soils and fertilizers. Lectures and laboratory. Credit I, IV. 3 points each Session. Professor Morgan

2.10 p.m., Monday and Friday (lectures), Room 505 Schermerhorn; laboratory, 3-5 p.m., Monday, Room 102 Schermerhorn. Fee \$18 each Session

Principles of soil management, given in the Winter Session, deals with the origin, composition and properties of soils; the physical, chemical and bacteriological factors; soil types and cropping systems as related to farm management. Excursions.

Fertilizers, manures and soil amendments, given in the Spring Session, deal with soils and crop problems in agriculture from the standpoint of soil fertility, the supply in the form of manure, etc., and the practical economic consideration of maintaining and increasing the crop-producing power of lands. Cover cropping, green manures, liming and drainage are fully considered. Special plant studies on soils and fertilizers in the greenhouse laboratory.

Agriculture e5 — Dairy industry. Lectures and laboratory. Credit IV. 3 points Winter Session. Professor Larson

1.10 p.m., Tuesday and Thursday, Room 516 Schermerhorn; laboratory,2.10-4 p.m., Thursday, Room 106 Schermerhorn. Fee \$18

This course aims to acquaint students with the general subject of dairying and includes a study of the composition of milk, causes for variation and the methods of handling and disposing of milk. The methods of making butter, cheese, ice cream, condensed milk, milk powder and other dairy products will be briefly discussed.

The laboratory work will consist of a thorough study and the use of the Babcock test for fat in milk and also other commercial tests for milk and its products.

For a course in Agricultural economics see p. 30.

Agriculture e5a — Course e5 without laboratory work. 2 points Winter Session. Professor Larson

7.40-9.30 p.m., Wednesday, Room 516 Schermerhorn. Fee \$12

Practice in balancing rations will be given.

Agriculture e6 — Dairy husbandry. Lectures and laboratory. Credit IV. 3 points Spring Session. Professor Larson

1.10 p.m., Tuesday and Thursday, Room 516 Schermerhorn; laboratory, 2.10-4 p.m., Thursday, Room 106 Schermerhorn. Fee \$18

A comprehensive study of dairy cattle feeding and management. It will include a thorough study of balancing dairy rations and practical feeding methods. Care of dairy cows, breeding, calf raising, housing, handy devices in dairy, and fitting dairy animals for show.

The laboratory work will include actual calculation of rations, dairy accounts, plans of dairy buildings and systems, and visits to dairy farms.

Agriculture e6a — Course e6 without laboratory work. 2 points Spring Session. Professor Larson

7.40-9.30 p.m., Wednesday, Room 516 Schermerhorn. Fee \$12

Practice in balancing rations will be given.

Agriculture e7 — Farm buildings and equipment. Lectures and laboratory. Credit IV. 2 points Winter Session. Professor Larson

2.10 p.m., Tuesday, Room 505 Schermerhorn; laboratory, 3.10-5 p.m., Room 502 Schermerhorn. Fee \$12

The course will include discussions of principles and practice of farm building location, grouping, arrangement, planning and construction. Also planning and methods of constructing gates, fences and special handy devices for the farm. The mechanics of materials and special work of an architect will not be included.

Agriculture e9 — Dairy inspection. Credit IV. 2 points Winter Session. Professor Larson

7.40-9.30 p.m., Tuesday, Room 505 Schermerhorn. Fee \$12

A special course for milk inspectors. It will take up the fundamental principles of milk regulations and give the student the reasons for different requirements. There will also be discussed the characteristics of milk, methods of clean milk production, the factors that affect milk purity, the points of the score card and its practical use in rating dairies. The grades and classes of milk in different cities and states will be compared.

Agriculture e11-12 — Milk. Hours to be arranged. Fee \$5 for the entire course. Professor Larson

Six lectures to different groups or classes. A special course for handlers of milk and milk wagon drivers. The following subjects will be discussed: 1. The value of milk as food. 2. The composition of milk. 3. How and why milk spoils. 4. The classes of milk. 5. What determines grade of milk. 6. Pasteurization of milk, its purpose and effect on milk.

Agriculture e15-16 — Principles of horticulture. Lectures and laboratory. Credit I, IV. 3 points each Session. Mr. Burgdorff

4.10 p.m., Tuesday and Thursday (lectures), Room 505 Schermerhorn; laboratory, 2.10-4 p.m., Tuesday, Room 502 Schermerhorn and in the greenhouse. Fee \$18 each Session

Fruit-growing, both small and tree, will be the major consideration of the Winter Session. Propagation, planting, inter-cropping, management in unproductive and productive periods, spraying, harvesting, storage and marketing; pruning, spraying, budding and grafting in their proper relation to fruit-farming, and special problems in vegetable and fruit farm management will receive emphasis. Nut culture will be treated briefly. Excursions form a part of the laboratory work.

Vegetable growing will comprise the chief part of the work of the Spring Session; preparation of soil, composts and seed for planting; hotbeds and cold frames, transplanting, forcing culture, companion cropping, spraying, harvesting, storage and marketing will be the main topics considered for kitchen, farm and market gardening. Flower garden-

ing is considered in Course e17.

Agriculture e17-18 — Amateur floriculture. Lectures and laboratory. 2 points each Session. Mr. Burgdorff

1.10-2 p.m., Thursday (lectures), Room 401 Schermerhorn; laboratory, 2.10-4 p.m., agricultural greenhouse. Fee \$12 each Session

The purpose of this course is to acquaint the student with our best annuals, herbaceous plants, their character, propagation and culture. Besides the preparation, fertilizing and planting of flower beds and window gardens, it will include insect and disease control. The selection and care of roses, shrubbery, vines and shade trees will be considered, as well as tree surgery and the pruning of trees and other ornamentals.

For course in Agricultural bacteriology see courses in Chemistry and Sani-

tation, pp. 36, 37, 86, 87.

# ARCHITECTURE

For other courses in History of art, Decorative arts, Painting and sculpture, see pp. 53, 54; for Structural mechanics, see pp. 43, 44. See pp. 5, 6 for a typical program of studies in architecture.

The following evening courses in architecture, offered in the year 1916-17, are open to all qualified students without examination. They correspond, in part, to the work given in the School of Architecture, and equivalent courses will count toward the degree in architecture for those who have passed the entrance examinations. For assistance in arranging programs in Architecture

in Extension Teaching, applications should be made to the Director of Extension Teaching, Room 301 University Hall.

For schedules of subjects and their position in the regular curriculum, see the Announcement of the School of Architecture.

Architecture e1 — The elements of architecture. Credit V. 6 points Winter Session. Professor HARRIMAN

8.20-9.10 p.m., Tuesday and Friday, Room 408 Avery. Drafting, 9.10-11 p.m., Tuesday and Friday, Room 504 Avery. Fee \$36

Mouldings, the orders, intercolumniation and superposition, balustrades, arcades doors, windows, roofs, spires, vaults, domes.

Architecture e2 — Applied elements. Credit V. 8 points Spring Session. Professor Harriman

8.20-10 p.m., Tuesday and Friday, Room 504 Avery. Fee \$48

Exercises in applications of elementary architectural forms as given in Course e1; of shades and shadows as given in Course e5; both of which are prerequisite.

Architecture e3 — Projections and intersections. 3 points Winter Session. Mr. ALLEN

8-8.50 p.m., Monday, Room 405 Avery; 7-7.50 p.m., Thursday, Room 405 Avery. Drafting, 8-9.40 p.m., Thursday, Room 504 Avery. Fee \$18

Points, lines, planes and solids in simple and oblique positions, architectural motives in plan, elevation and section, developments of surfaces, practice in visualization. Recommended for all draftsmen of little office experience and for students who intend taking Architecture e5, e8 and especially e9-10.

Will not be given for less than ten students.

Architecture e4 — Projections and intersections. 3 points Spring Session.

Mr. Allen

8-8.50 p.m., Monday, Room 405 Avery; 7-7.50 p.m., Thursday, Room 405 Avery. Drafting, 8-9.40 p.m., Thursday, Room 504 Avery. Fee \$18

Architecture e3 repeated in the Spring Session. Will not be given for less than ten students.

Architecture e5 — Shades and shadows. Credit V. 4 points Winter Session. Professor Sherman

7-7.50 p.m., Monday, Wednesday and Friday, Room 408 Avery. Fee \$24

Brief, accurate and unique methods for determining the shadows of geometrical lines, plane figures and solids; also of the principal architectural members; practical applications.

Architecture e6—Shades and shadows. Credit V. 4 points Spring Session. Mr. Allen

7-7.50 p.m., Monday, Wednesday and Friday, Room 407 Avery. Fee \$24

Brief, accurate, and unique methods for determining the shadows of geometrical lines, plane figures, and solids; also of the principal architectural numbers; practical applications.

Will not be given for less than ten students.

Architecture e7—Perspective. Credit V. 3 points Winter Session. Mr. Allen

7-7.50 p.m., Monday and Wednesday, Room 407 Avery; 8-9.40 p.m., Thursday, Room 504 Avery. Fee \$18

Brief, direct, and unique methods, using distance points, the office method; the perspective of shadows and of reflections.

Will not be given for less than ten students.

Architecture e8 — Perspective. Credit V. 3 points Spring Session. Professor Sherman

8-8.50 p.m., Monday and Wednesday, Room 408 Avery; 7.30-9.10 p.m., Thursday, Room 504 Avery. Fee \$18

Architecture e7 repeated in the Spring Session

Will not be given for less than ten students.

Architecture e9-10—Descriptive geometry. Credit V. 3 points each Session. Mr. Allen

8-8.50 p.m., Wednesday and Friday, Room 405 Avery. Fee \$18 each Session

Rapid and unique methods of solving problems relating to right lines and planes; phenomena of lines and surfaces; tangent planes; intersections and developments. Will not be given for less than ten students.

Architecture e11 — Plumbing and drainage. Credit V. 2 points Winter Session. Mr. Walsh

8-8.50 p.m., Monday, Room 407 Avery. Fee \$12

The principles of sanitation, the methods of sewage disposal and the design of a modern plumbing system in accordance with the New York City Building Code.

Will not be given for less than ten students.

Architecture e15-16 — Building materials and construction. Credit V. 3 points each Session. Mr. Walsh

8-8.50 p.m., Tuesday and Thursday, Room 407 Avery. Fee \$18 each Session

Properties and tests of building materials. Carpentry, slow-burning construction, steel and iron construction, masonry, fireproofing, reinforced concrete and their appearance in buildings. Specifications.

[Architecture e27 — Ancient architecture.

Not given in 1916-17; will be offered in 1917-18.]

[Architecture e28 — Medieval architecture.

Not given in 1916-17; will be offered in 1917-18.]

Architecture e29 — Renaissance architecture. Credit I. 1 point Winter Session. Curator Bach

4-4.50 p.m., Monday, Room 407 Avery. Fee \$6

The architecture of the Renaissance in Italy and France. Analytical and critica dissussion of historic development and great examples of architecture since 1420. No credit will be given for Architecture e29 unless taken with one other course.

Architecture e30 — Renaissance, and modern architecture. Credit I. 1 point Spring Session. Curator Bach

4-4.50 p.m., Monday, Room 407 Avery. Fee \$6

The architecture of the Renaissance in Germany, Spain and the Low Countries; architecture of the 19th century in Europe; American architecture, modern and contemporary developments and tendencies; analytical and critical discussion of historical development and great examples of architecture since 1420.

No credit will be given for Architecture e30 unless taken with one other course.

Architecture e31-32 — Ancient ornament. Credit I, V. 1 point each Session. Mr. Hamlin

6-6.50 p.m., Friday, Room 407 Avery. Fee \$6 each Session

General classifications; origins, primitive and savage ornament; the historic ornament of Egypt, Assyria, Persia, Greece and Rome, including Ægean, Cypriote, Phoenician and Etruscan ornament; the development of the styles, the common motives and patterns of both architectural ornament and the minor arts.

No credit will be given for Architecture e31-32 unless taken with one other course.

Architecture e37 — Medieval ornament. Credit I. 1 point Winter Session. Mr. Hamlin

6-6.50 p.m., Tuesday, Room 407 Avery. Fee \$6

The ornament of the Early Christian, Byzantine, Romanesque and Gothic styles both in architecture and the minor arts; the development of styles, motives and patterns.

No credit will be given for Architecture e37 unless taken with one other course.

Architecture e38 — Modern ornament. Credit I. 1 point Spring Session. Mr. Hamlin

6-6.50 p.m., Tuesday, Room 407 Avery. Fee \$6

The ornament of the Renaissance in Italy, France, Germany, Spain, the Netherlands and England; American "Colonial" ornament; developments in the 19th century in Europe and America; modern phases and tendencies in ornament.

No credit will be given for Architecture e38 unless taken with one other course.

Architecture e71-72 — Drawing. Credit V. 2 points each Session. Professor Harriman

8-9.40 p.m., Monday and Thursday, Room 502 Avery. Fee \$12 each Session

Drawing in outline; isometric; from cast, pencil and charcoal. Drawing e71 is prescribed for e72.

Architecture e75-76 — Drawing. Credit V. 2 points each Session. Professor Harriman

8-9.40 p.m., Monday and Thursday, Room 502 Avery. Fee \$12 each Session

Advanced charcoal drawing from east. Pen and ink. Prerequisite: e71-72, or its equivalent.

Architecture e80 — Drawing. Credit V. 2 points Spring Session. Professor Harriman

8-9.40 p.m., Monday and Thursday, Room 502 Avery. Fee \$12

Drawing in outline; isometric; from east, pencil and charcoal. Equivalent to Drawing e71.

# Architectural Design

The courses in Architectural Design are conducted on the basis of a progressive series of problems and sketches. These are assigned in the form of programs issued at stated intervals. The work of the students, delivered at a designated time, is passed upon by a jury of architects, the whole program being in this respect identical with that of the Society of Beaux-Arts Architects. A registration fee of two dollars is required by this Society; this must be paid to the Chairman of the Committee on Education, 126 East 75 Street, New York City. More detailed information on this head will be found in a special folder to be obtained in Room 401 Avery Hall.

# Tuition Fees for Design

The tuition fee in Design, regardless of course, is \$30 per session. Tuition fees are under no conditions returnable if the full session's work is not taken. Students are advanced in accordance with the regulations of the Society of Beaux-Arts Architects on the basis of values obtained.

NOTE. — The full fee covers registration for five regular problems of the Beaux-Arts Society. No additional fee is required for ten-hour sketches or for archaeology problems. Upon previous application to Curator Bach, 401 Avery Hall, qualified students may also be admitted without additional fee to other problem competitions conducted by the School of Architecture.

Sketches and problems will be accepted only after tuition fees have been paid as indicated above.

Prerequisites for all courses. — Work in the elements of architecture and shades and shadows, corresponding respectively to Architecture e1, e2, and e5, or their equivalents, such equivalents to be determined by Mr. WARE before registration. Those who wish subsequently to transfer their credits to the records of the School of Architecture must also submit Descriptive geometry, Architecture e9-10, or its equivalent.

Students may meet the instructors on September 23 and September 30 at 2 p.m., and on September 27 at 8 p.m., in Room 202 Avery.

Architecture e61-62 — Elementary design. Credit V.\* 20 hours. Associate Ware, Mr. Corbett and Mr. Schulz

Room 202 Avery. Fee, see above

Major and minor problems corresponding to the Class B Analytique Problems of the Society of Beaux-Arts Architects.

Architecture e63-64 — Intermediate design. Credit V.\* 20 hours. Associate Ware, Mr. Corbett and Mr. Schulz

Room 202 Avery. Fee, see above

<sup>\*</sup> Students desiring credit for this course in the School of Architecture must submit a complete set of drawings done in Extension Teaching up to the time of the application for transference of credit and bearing the attestation of the instructor in charge. Requests for such transference of credit should be made to Mr. R. F. Bach, Curator of the School of Architecture, or left in writing for him at the office of the Director of Extension Teaching. The difference in tuition fees must be paid.

Major and minor problems corresponding to the Class B Problems (Projets) of the Society of Beaux-Arts Architects.

Architecture e65-66 — Advanced design. Credit V.\* 20 hours. Associate Ware, Mr. Corbett and Mr. Schulz

Room 202 Avery. Fee, see above

Major and minor problems corresponding to the Class A Problems (Projets) of the Society of Beaux-Arts Architects.

### BOOKKEEPING

Bookkeeping e1-2 — Secretarial bookkeeping. 2 points each Session. Mr. Hughes

9.20-11 a.m., Saturday, Room 505 Journalism. Fee \$12 each Session

A knowledge of bookkeeping is not required of students taking this course. The purpose is to prepare the student to keep the books of the professional man as well as to interpret the books of a modern business. From the study of a few simple accounts the work will proceed to a drill in double entry as applied to a trading concern. Exercises in single entry as applied to the professions of law and medicine will be prepared. Some of the special features of this course will include the preparation of various business forms and reports; the analysis of accounts and financial statements; the preparation of bank reconcilements; the study of household and hotel accounts; the accounts of institutions, such as libraries, hospitals, clubs and associations.

Bookkeeping e4 — Secretarial bookkeeping. 2 points Spring Session. Mr. Hughes

4-5.40 p.m., Wednesday, Room 505 Journalism. Fee \$12

This course, beginning in February, is equivalent to the Winter Session of the preceding course and is planned for secretarial students who have never studied bookkeeping. It should be followed in September by Course e5.

Bookkeeping e5 — Advanced secretarial bookkeeping. 2 points Winter Session. Mr. HUGHES

4-5.40 p.m., Wednesday, Room 505 Journalism. Fee \$12

A continuation of Course e4 for students who began the study of bookkeeping in February and for those who already have some acquaintance with the subject.

#### BOTANY

Botany e1-2 — Nature and development of plants. Lectures and laboratory. Credit I, IV. 4 points each Session. Dr. Dodge and Dr. Altenburg 7.20-8.20 p.m., Monday and Thursday, Room 505 Schermerhorn; laboratory, 8.20-9.50 p.m., Room 502 Schermerhorn. Fee \$24 each Session

Organs, structure and work of the plant; development of plant life through an examination of the important biologic types.

<sup>\*</sup>Students desiring credit for this course in the School of Architecture must submit a complete set of drawings done in Extension Teaching up to the time of the application for transference of credit and bearing the attestation of the instructor in charge. Requests for such transference of credit should be made to Mr. R. F. Bach, Curator of the School of Architecture, or left in writing for him at the office of the Director of Extension Teaching. The difference in tuition fees must be paid.

Botany e1a-2a — General botany. Lectures and laboratory. Credit I, IV. 2 points each Session. Dr. Dodge and Mr. Altenburg

1.10 p.m., Saturday, Room 505 Schermerhorn; laboratory, 2.10-4 p.m., Room 502 Schermerhorn. Fee \$12 each Session

Equivalent to Botany e1-2 if taken for two years.

Botany e3-4 — Edible and poisonous fungi. Credit IV. 2 points each Session. Dr. Dodge

2.10 p.m., Saturday, Room 505 Schermerhorn; laboratory, 3-4 p.m., Room 502 Schermerhorn. Fee \$12 each Session

Laboratory work on the identification of the common types with field excursions for collecting and photographing specimens.

Botany e5-6 — Students having completed the preceding courses may continue their work by registering for this class, the hours and character of the work to be determined upon consultation with Professor Harper. Credit I. 2 points each Session. Fee \$12 each Session

#### BUSINESS

# Accounting

The courses in accounting have been carefully graded and correlated. It is, therefore, to the best interest of the student, in order to secure a thorough preparation and a broad view of the whole field, to take the courses as outlined and in the suggested order, covering the full three-year schedule.

Students who have had equivalent work in similar approved schools elsewhere will be admitted to advanced standing. Those having had practical experience and some study fitting them for advanced courses will be admitted to such courses only upon examination. See p. 7.

The instruction in accounting is designed equally for those who are looking towards accountancy as a profession and as a preparation for business or teaching.

Business e23-24 — Elements of accounting. Credit IX. 2 points each Session. Fee \$12 each Session

Section 1 — 7.40-9.30 p.m., Monday, Room 511 Journalism. Mr. Baltz Section 2 — 7.40-9.30 p.m., Tuesday, Room 511 Journalism. Mr. Seward

This course assumes no knowledge of bookkeeping, but develops the subject rapidly, devoting its time and emphasis to the foundational problems of accounting. It is built up along the lines and methods of modern accounting practice. The subject matter includes theories of debit and credit; classification of accounts: underlying principles of the various accounting records; business papers and documents used as the basis for first entry; simpler problems of the balance sheet and income statement: single entry; controlling accounts; handling sales and purchases; safeguarding the cash; consignments; and related topics.

Ample practice for students is provided.

While no preliminary knowledge of the keeping of accounts is necessary, the work will be advanced in character, and profitable even for those who know bookkeeping.

It is prerequisite to all the other courses in accounting.

Business e23a — Elements of accounting. Credit IX. 2 points Winter Session. Mr. Baker

7.40-9.30 p.m., Thursday, Room 512 Journalism. Fee \$12

Identical with Business e24, but offered in the Winter Session for the benefit of those who have had Business e23.

Business e24a — Elements of accounting. Credit IX. 2 points Spring Session. Mr. Baker

7.40-9.30 p.m., Thursday, Room 512 Journalism. Fee \$12

Identical with Business e23, but offered in the Spring Session for those beginning the study of accounting.

Business e25-26 — Principles of accounting. Credit IX. 2 points each Session. Mr. Koopman

7.40-9.30 p.m., Thursday, Room 511 Journalism. Fee \$12 each Session

A thorough study of the corporation and its related problems is the chief aim of the first half of the course. Some of the topics covered are: records and accounts peculiar to a corporation; elements of manufacturing accounts; perpetual inventory; the voucher system and payroll methods; theories of the balance sheet; its make-up, form and arrangement; the valuation of assets in the balance sheet; depreciation; the showing of liabilities; the valuation of capital stock; profits; dividends; reserves and surplus; sinking and other funds; the income summary and problems connected therewith; liquidation of a corporation; consolidations and mergers; branch house accounting; fire loss adjustments; hypothecation of accounts receivable; etc.

Practice work for the Winter Session will consist of data in corporation manufacturing

accounting for record in blanks and of correlated problems.

The work of the Spring Session will consist of carefully classified and graded problems, supplemented by lectures and demonstrations.

Prerequisite: Business e23-24.

Business e25a — Principles of accounting. Credit IX. 2 points Winter Session. Mr. Koopman

7.40-9.30 p.m., Friday, Room 505 Journalism. Fee \$12

Identical with Business e26, but offered in the Winter Session. Prerequisite: Business e25.

Business e26a — Principles of accounting. Credit IX. 2 points Spring Session. Mr. Koopman

7.40-9.30 p.m., Friday, Room 505 Journalism. Fee \$12

Identical with Business e25, but offered in the Spring Session. Prerequisite: Business e23-24.

Business e127-128 — Practical accounting. Credit II, half course; Credit IX, 2 points each Session. Mr. Boyce

7.40-9.30 p.m., Friday, Room 511 Journalism. Fee \$12 each Session

A course in problems supplemented by lectures and demonstrations.

Practical problems taken from certified public accountant examinations and from practical experience are assigned to the students each week. Questions in theory are also assigned.

The preparation of consolidated balance sheets and profit and loss statements will be demonstrated.

Accounts peculiar to the following classes of enterprises are considered: banks; insurance; brokers; mining; municipal; brewery; hotel; club; public service corporation,

including gas, water, electric light and power, telephone, steam and electric railway, contracting and engineering.

Prerequisite: Business e25-26.

Cost of text-book and problems \$10.

Business e129 — Cost accounting. Principles and theory. Credit II, half course; Credit IX, 2 points Winter Session. Mr. Nicholson

7.40-9.30 p.m., Wednesday, Room 511 Journalism. Fee \$12

The following is the general outline: Elements of costs; principles and general methods of cost finding; direct and indirect costs; direct and indirect expenses; wage systems, recording material and labor costs; compiling the cost data; control of cost records by financial books.

A text-book on cost accounting will be used as a basis for home assignments.

May be taken as a parallel course with Business e25-26.

Prerequisite Business e23-24.

Business e130 — Cost accounting. Practice. Credit II, half course; Credit IX, 2 points Spring Session. Mr. Nicholson

7.40-9.30 p.m., Wednesday, Room 511 Journalism. Fee \$12

The following is the general outline: Examination of plants; devising of cost systems; estimating of cost systems; departmental cost systems; special order systems according to productive labor and machine cost plans; productive systems according to productive labor and machine cost plans.

A text-book on cost accounting will be used as a basis for home assignments.

Prerequisite: Business e129.

Business e131-132 — Auditing, theory and practice. Credit II, half course; Credit IX, 2 points each Session. Professor Montgomery

7.40-9.30 p.m., Tuesday, Room 512 Journalism. Fee \$12 each Session

This course is for advanced students only. A text-book on auditing will be used as a basis for home assignments, and students will be expected to spend at least two hours each week preparing for the quiz which forms part of the classroom work. Students will be taught to prepare working audit programs for various classes of business. The principal object of this course will be to train and develop the analytical faculties of the students. Methods of accounting used by unsuccessful concerns will be explained and the causes of failure analyzed. Methods followed by concerns which need capital involving hypothecation of assets and manipulation of accounts with allied and subsidiary concerns will be discussed.

Prerequisite; Business e127-128.

Students can apply the essential underlying principles of auditing as developed in this course to practical work by taking Business e133-134 (laboratory) as a parallel course.

Business e133-134 — Advanced accounting. Laboratory course. Credit II, half course; Credit IX, 2 points each Session. Fee \$12 each Session. Mr. Byrnes

Section 1 — 7.20-9.30 p.m., Monday, Rooms 503 and 505 Journalism Section 2 — 7.20-9.30 p.m., Thursday, Rooms 503 and 505 Journalism

This course consists of laboratory work exclusively. The material used will be the account books of various firms and corporations which have gone into bankruptcy or liquidation. These records present many interesting and complicated problems. Many sets of books are available offering a wide scope for analysis and investigation. Practical questions and problems compiled from these old records will be given to the student to answer and solve by an actual examination of the books.

These will give the student a practical working test under conditions which very closely correspond to those to be met in actual practice, and the course will be particularly advantageous to students who have had only a limited opportunity to examine books used

by various classes of enterprises.

The laboratory also contains many blank forms, designed for different classes of enterprises.

Prerequisite: A thorough knowledge of accounting.

Two prizes, one of \$25 and one of \$15, offered by the New York State Society of Certified Public Accountants will be awarded to students from among those who take the evening course in the accountancy laboratory for the coming year. For information as to these prizes consult Professor Montgomery.

Business e135-136 — Transportation accounting. Credit II, half course; Credit IX, 2 points each Session. Mr. BOYCE

7.40-9.30 p.m., Wednesday, Room 505 Journalism. Fee \$12 each Session

This course is designed for students who are especially interested in steam and electric railway accounting, and who have a comprehensive knowledge of general accounting.

These lectures are to be supplemented by blackboard work as well as test problems and will comprise discussions on transportation accounting from its early development in this country to the establishment of uniform classification of accounts by state and federal authorities. The essential features of the Inter-State Commerce Commission's Classification of Accounts will be explained, and the requirements of the various classifications issued by state and federal authorities will be compared.

The accounts included in the following general subdivisions will be discussed at length; capital accounts; construction accounts; equipment accounts; operating accounts. Financial and statistical statements, including those required by the various commissions

will be submitted and discussed.

# Commerce and Industry

Business e7-8 — Business organization and administration. Credit IX. 2 points each Session. Professor Haig

7.40-9.30 p.m., Thursday, Room 507 Journalism. Fee \$12 each Session

A brief survey of the development of business enterprise. A comparison of the individual proprietorship, the partnership and the corporation. The structure and organization of corporations; where to incorporate; the charter; organization meetings; selection of officers; proxies; voting trusts, standing committees, etc. Principles of organization, line and staff, etc. Factors influencing location and construction of plants. Purchasing and receiving; stores and perpetual inventories. Production routine; wage systems and philosophies of management, including the brief survey of the scientific management and business efficiency movements. Credits and collections; sales organization; advertising department; traffic and shipping; office organization; graphic records, etc.

The course is designed as a general survey of modern business procedure.

Business e15 — Practical advertising. Credit IX. 2 points Winter Session. Mr. Hubbart

7.40-9.30 p.m., Tuesday, Room 609 Journalism. Fee \$12

Primarily this course deals with the theory, technique and practice of advertising, with the object of giving the student a definite idea of the nature of advertising as a factor in business and a fair understanding of its use and value in the promotion of sales. The course is conducted, however, as an idea class with the purpose of studying the origin of salesbuilding ideas and how they may be applied to copy designed for use in creating sales. To this end assignments are given in the formulation of campaigns; copy and ideas are analyzed to discover their proper adjustment to the selling problems incidental to the marketing of prescribed commodities. All class discussions are based on copy and ideas turned in by the student. Particular attention is devoted to the special features of retail publicity, and the fundamental aspects of national, consumer, class, trade and technical advertising are discussed in detail.

Students are advised to take Psychology of advertising and Business English as parallel

courses.

Business e16 — Advanced advertising. Credit IX. 2 points Spring Session, Mr. Hubbart

7.40-9.30 p.m., Tuesday, Room 609 Journalism. Fee \$12

Advertising viewed as a factor in building business for a prescribed commodity. The course deals primarily with details of campaigns, plans, costs, methods, media and problems in circulation.

Prerequisite: Business e15 or equivalent.

Business e16a — Practical advertising. Credit IX. 2 points Spring Session. Mr. Hubbart

7.40-9.30 p.m., Monday, Room 507 Journalism. Fee \$12

This course deals with the theory, technique and practice of advertising, from the point of view of the writer and planner of copy. The course consists of lectures, supplemented by practice assignments in the writing and preparation of copy. Identical with Course e15.

Business e19 — Salesmanship. Credit IX. 2 points Winter Session. Mr. Hubbart

7.40-9.30 p.m., Thursday, Room 609 Journalism. Fee \$12

Selling and the prime essentials of salesmanship are considered in this course. The student is given a grounding in the principles of selling and practice in the presentation of a selling proposition from its inception in the customer's mind throughout its development and final consummation as a sale.

The distinct forms of sales are illustrated with typical problems in selling at retail, wholesale, the marketing of specialties and problems in promotion. The student is familiarized with the essential features in the linking of sales and advertising campaigns in the creation and development of business backgrounds.

The ultimate aim of this course and of Business e15 and e16 is to fit the student to analyze market problems and to apply to them the proper principles and methods of advertising and selling.

Business e40 — Agricultural economics. Credit IX. 2 points Spring Session. Professor Larson

4.10-5 p.m., Monday and Thursday, Room 516 Schermerhorn. Fee \$12

A general study of agricultural problems from the economic standpoint and includes such subjects as the economic conditions of agriculture in different parts of the United States; size of farms and significance; intensive and extensive methods; farm labor and wages; land rents; agricultural credits; the cost of production of agricultural products; place of animal husbandry in agriculture; farmers' organizations; co-operative manufacturing; buying; selling and distribution; butter, cheese and egg exchanges; fruit and produce auctions; the work of schools of agriculture and the United States Department of Agriculture.

Business e89-90 — History of American commerce. Credit IX. 2 points each Session. Dr. Van Metre

7.40-9.30 p.m., Friday, Room 609 Journalism. Fee \$12 each Session

Origin and development of the foreign and domestic commerce of the United States; change in business organization; character of commercial policy; influence of commercial conditions on political history; the problems of commercial expansion.

Business e117-118 — Psychology of advertising and selling. Credit II, half course or full course; Credit IX, 2 points each Session. Professor HOLLINGWORTH

7.40-9.30 p.m., Monday, Room 407 Schermerhorn. Fee \$12 (half course or 2 points); \$24 (full course)

Application of psychological principles and experimental methods to the problems of appeal and response in advertising and selling. Analysis and evaluation of the methods and devices of publicity on the basis of (1) the known facts of human nature; (2) detailed examination of actual advertising campaigns and the analysis of their results; (3) the application of laboratory and statistical technique; and (4) comparative study of old and new methods of marketing. The material for the entire course is based upon the findings of experimental investigation and the results of actual sales campaigns. Illustrated by lantern slides and current advertising material. The student's work consists of the reading of standard texts and references, the performance of class assignments, and, in the Spring Session, the conduct of an original investigation in the field. The extra work of the full course consists of assigned reading and reporting on special topics, in consultation with the instructor. Either Session may be taken separately. A printed syllabus has been provided for this course.

History e177-178 — Latin America. Credit II, half course; Credit IX, 2 points each Session for those taking both hours. Professor Shepherd

7.30-8.20 p.m., lecture; 8.20-9.10 p.m., conference, Monday, Room 615 Kent. Fee \$12 each Session

Survey of the national development and international relations of the Latin-American countries, followed by an intensive study of social conditions, political and financial situation, geography and natural resources, industry, trade and transportation. Recognition of the individuality of each republic, so far as may be needful to explain its position in the world at large; but special consideration is given to the states of most importance. Primary object of the course is to supply the knowledge and to cultivate the attitude of mind which may enable Americans to understand the Latin-Americans, appreciate their circumstances, work with them along the lines of material and intellectual progress and contribute in general to the promotion of inter-American commerce and friendship.

Business e197-198 — International trade and foreign salesmanship. Credit II, half course; Credit IX, 2 points each Session. Dr. MacElwee 5.20-7 p.m., Monday, Room 507 Journalism. Fee \$12 each Session

Commercial history: Venice, the Hansa, Lisbon, Cadiz, Amsterdam, London, New York. Economic development of the leading commercial nations since the Congress of Vienna. Analysis and comparison of their internal economy. The struggle for "spheres of influence" both political and commercial in Asia, Africa and South America. The tools of oversea commerce, ports and their connecting links with the interior, railroads and waterways, bank facilities and international exchange, merchant marine, preparedness, commercial prestige. Foreign selling, American failures and successes. The phenomenal commercial advance of the German Empire since 1888. Collectivism and a new patriotism in foreign commerce.

#### Commercial Arithmetic

Business e61 — Elementary business arithmetic. 2 points Winter Session.

Mr. Van Tuyl

7.40-9.30 p.m., Tuesday, Room 612 Journalism. Fee \$12

A thorough review of fundamental operations as applied to everyday business transactions, particular attention being given to simple, short, practical methods of calculations. Special topics considered are: Aliquot parts as applied to multiplication, division, percentage and interest; rapid calculations; checking results; fundamental principles of arithmetic as used in the solution of problems; practical measurements; graphs; percentage and its applications; bank discount. This course is planned to meet the needs of teachers of business arithmetic and of clerks and others desiring to become more efficient in arithmetical work.

Business e62 — Business mathematics. Credit IX. 2 points Spring Session. Mr. Van Tuyl

7.40-9.30 p.m., Tuesday, Room 612 Journalism. Fee \$12

This course presupposes a working knowledge of elementary business arithmetic and will include such topics as insurance, taxes, stocks, bonds, exchange, United States customs and equation of accounts. Calculating tables will be introduced and used insolving problems. The work is designed to be helpful to teachers of business arithmetic in secondary schools and in private business schools; also to clerks in banks and brokerage houses.

# Commercial Law

Business e73-74 — Contracts. Credit IX. 2 points each Session. Professor Gifford

7.40-9.30 p.m., Thursday, Room 603 Journalism. Fee \$12 each Session

This course aims to furnish an exposition of the fundamental principles of the law of contracts, including parties, subject matter, the essentials of mutual assent, formal requisites, consideration, construction, discharge and consequences due to breach of contract.

Text-book: Ashley's Cases on Contracts.

Business e75 — Corporation law. Credit IX. 2 points Winter Session. Professor WORMSER

7.40-9.30 p.m., Tuesday, Room 515 Kent. Fee \$12

This course deals with the nature and formation of private corporations; their management, including the issue and transfer of stock, the rights and liabilities of promoters, stockholders and directors; the proper method of holding corporate meetings and keeping the records thereof; the taxes required of an ordinary business corporation.

Text-book: Canfield and Wormser's Cases on Corporations.

Business e76 — Negotiable instruments. Credit IX. 2 points Spring Session. Mr. Currier

7.40-9.30 p.m., Wednesday, Room 515 Kent. Fee \$12

The object of this course is to acquaint students with the history of negotiable paper and to give them a correct idea of the legal principles governing the rights and duties of the various parties to it. It is not intended for law students but for persons who intend to engage in business. An attempt will be made to discuss the everyday questions which confront the business man in his use of bills, notes and checks and to teach the student how to solve them.

Text-book: Smith and Moore's Cases on Bills and Notes.

Business e81-82 — Latin-American commercial law. Credit IX. 2 points each Session. Mr. Obregon

7.40-9.30 p.m., Thursday, Room 709 Journalism. Fee \$12 each Session

A general idea of the history of Latin-American countries as a means of understanding their legislation, and particularly their commercial law.

First, the legal condition of merchants; the constitution of commercial companies and their different characters; the rights and obligations of stockholders, and of those who organize and administer corporations; the rights of agents and attorneys. Second, the requisites and fulfillment of contracts; negotiable instruments; foreign exchange. Third, administration of justice and judicial procedure; bankruptcy or insolvency. Fourth, the institutions and laws of commerce in relation to banks, coinage, postal service and customs duties; regulations as to imports and exports; laws applying to patents and copyrights; laws relating to public lands and to mines; the consular service.

# Economics

Economics e1-2 — Principles of economics. Credit I, IV. 3 points each Session. Professor Haig

7.30-10 p.m., Saturday, Room 512 Journalism. Fee \$18 each Session

Economics is the study of business activity from the standpoint of public welfare. This course undertakes first to explain the present-day organization and operation of industry and second to consider how far the present situation needs correction from the standpoint of efficiency in production and justice in distribution. The Winter Session will be concerned with an historical and analytical study of the principles. The Spring Session will be chiefly concerned with practical economic problems, such as the tariff, money and banking, monopolies, the labor problem, etc.

The course presupposes some knowledge of European and American history.

#### Finance

Business e45-46 — Corporation finance. Credit IX. 2 points each Session. Professor Lyon

7.40-9.30 p.m., Monday, Room 609 Journalism. Fee \$12 each Session

For the Winter Session the course will present the variations of risk and income and control of corporation effects through the issuance of its securities; principles governing the issuance and proportions of classes of securities of a corporation, or the plan of capitalization, financial situations which lead to the issuance of particular forms of securities, the organization of subsidiaries, assumed bonds and guaranteed securities; leases; securities issued for mergers, combinations and consolidations; amortization of debt; the preparation of securities with relation to the market.

In the Spring Session the course will discuss the finding of funds for the capital account; financing through an appeal to the stockholders and stockholder's "rights"; work and methods of the banking houses in financing corporations and inducing capitalists to commit funds to the enterprise; making a "market"; syndicate transactions, joint accounts and underwritings; management of incomes; financing of receiverships, readjustments of the capital account and reorganizations.

Business e77-78 — Personal insurance. Credit IX. 2 points each Session. Professor HUEBNER

5.30-7.20 p.m., Friday, The Woolworth Building. Fee \$12 each Session

A detailed study of the principles underlying the insurance of persons and including an examination of the different kinds of insurance organizations; selections of lives; types of policies; methods of loading; reserves; surrender values; policy loans; office and field organizations; sickness and invalidity insurance; workmen's compensation; unemployment insurance, etc.

Business e147-148 — Investments. Credit II, half course; Credit IX, 2 points each Session. Mr. LOWNHAUPT

7.40-9.30 p.m., Wednesday, Room 609 Journalism. Fee \$12 each Session

The course will discuss tests of an investment and their application; real estate mortgages and realty mortgage bonds; government, state and municipal bonds, nature of their security and analysis of municipal statements; corporation securities and stocks; their claims on earnings and assets and the enforcement of these claims; mortgage bonds, debentures, financial notes, classes of stock, collateral securities and the value of guaranties from the viewpoint of the interests of the investor; special investment considerations of the securities of railroad, public service, hydro-electric and other classes of corporations; analysis of corporation reports and uses of the sources of investment information; classes of private investors and their needs; investments of commercial banks, savings banks, trust companies, insurance companies and trustees; when and how to make and how to care for investments.

#### CHEMISTRY

Chemistry eA1 — General chemistry. Elementary course for students beginning the study of chemistry. 2 lectures, 1 recitation and 2 hours' laboratory practice a week. Credit I, IV. 4 points Winter Session. Professor NEISH and assistants

7-9.50 p.m., Tuesday, and 7-8.50 p.m., Friday. Fee \$24 Lecture, Tuesday and Friday, 7-7.50 p.m., Room 309 Havemeyer Recitation, Friday, 8-8.50 p.m., Rooms 309, 301, 511 Havemeyer Laboratory, Tuesday, 8-9.50 p.m., Room 615 Havemeyer

This course is the duplicate of the day course A1. It is prerequisite to the other courses in chemistry given in Extension Teaching and to the first-year chemistry in the combined six-year College and Engineering course.

Deposit \$15.

Text-books: Smith's Elementary Chemistry and Laboratory Outline (interleaved).

Chemistry eA2 — General chemistry. Course eA1 repeated in the Spring Session for students desiring to begin in February. Credit I, IV. 4 points Spring Session. Mr. HAESELER and assistant

7-9.50 p.m., Tuesday, and 7-8.50 p.m., Friday. Fees as for eA1 above Lecture, Tuesday and Friday, 7-7.50 p.m., Room 309 Havemeyer Recitation, Friday, 8-8.50 p.m., Rooms 309, 301 Havemeyer Laboratory, Tuesday, 8-9.50 p.m., Room 615 Havemeyer

Chemistry e3-4 — General inorganic chemistry. 3 hours' classroom and 6 hours' laboratory work a week in each Session. Credit I, IV, V. 5 points each Session. Identical in content and credit with Chemistry e6-7. Mr. HAESELER and assistant

7-9.50 p.m., Tuesday, Wednesday and Friday. Fee \$30 each Session Lecture, Tuesday, Wednesday and Friday, 9-9.50 p.m., Room 311 Havemeyer

Laboratory, Tuesday, Wednesday and Friday, 7-8.50 p.m., Room 615 Havemeyer

Deposit \$15 each Session.

Prerequisite: Chemistry eA1, eA2, or the equivalent, and elementary physics.

Chemistry e6 — General inorganic chemistry. 3 hours' classroom and 6 hours' laboratory work a week. Credit I, IV, V. 5 points Spring Session. Professor Neish and assistant

7-9.50 p.m., Tuesday, Wednesday and Friday. Fee \$30

Lecture, Tuesday, Wednesday and Friday, 7–7.50 p.m., Room 311 Have-meyer

Laboratory, Tuesday, Wednesday and Friday, 8–9.50 p.m., Room 615 Havemeyer

This course, which presupposes a knowledge of general chemistry (eA1), continues the study of general chemistry, with particular reference to giving a greater knowledge of descriptive chemistry and a more advanced and systematic discussion of general principles and their applications. This course followed by Chemistry e7 aims thus to prepare the student for the courses in organic chemistry or in qualitative analysis. It is equivalent

to Chemistry 6 — required of all first-year students in the combined six-year College and Engineering course, or to Chemistry 3-.

Deposit \$15.

Text-books: Smith's Introduction to Inorganic Chemistry and Laboratory Outline.

Prerequisite: Chemistry eA1 or eA2 or the equivalent.

Note. — Chemistry eA1 followed by Course e6-7 is accepted for admission to the College of Physicians and Surgeons.

Chemistry e7 — General inorganic chemistry. 3 hours' classroom and 6 hours' laboratory work a week. Credit I, IV, V. 5 points Winter Session. Mr. Haeseler and assistant

7-9.50 p.m., Tuesday, Wednesday and Friday. Fee \$30

Lecture, Tuesday, Wednesday and Friday, 7–7.50 p.m., Room 311 Have-meyer

Laboratory, Tuesday, Wednesday and Friday, 8-9.50 p.m., Room 602 Havemeyer

This course is a continuation of Chemistry e6. It is equivalent to Chemistry -7 required of all second-year students in the combined six-year College and Engineering course, or to Chemistry -4.

Deposit \$15.

Prerequisite: Chemistry e6 or e3 or the equivalent.

Chemistry e14 — Qualitative analysis. 2 lectures and 6 hours' laboratory work a week. Credit I, IV, V. 5 points Spring Session. Dr. Booge 7-9.50 p.m., Tuesday, Wednesday, and 7-8.50 p.m., Friday. Fee \$30 Lecture, Tuesday and Wednesday, 7-7.50 p.m., Room 301 Havemeyer Laboratory, Tuesday and Wednesday, 8-9.50 p.m., and Friday, 7-8.50 p.m., Room 602 Havemeyer

A systematic course in the theory and practice of inorganic qualitative analysis based upon the principles of modern chemistry. It is equivalent to Chemistry 14- required of all second-year students in the combined six-year College and Engineering course, or to Chemistry 11-.

Deposit \$15.

Text-book: Steiglitz' Qualitative Analysis, Pt. I.

Prerequisite: Chemistry e6-7, 6-7, e3-4 or 3-4.

NOTE. — Students who have previously completed the greater part of this course may, with the consent of the Director, register for the remainder, counting it 1 to 3 points.

Chemistry e15 — Qualitative analysis. 2 lectures and 6 hours' laboratory work a week. Credit I, IV, V. 4 points Winter Session. Dr. Booge 7-9.50 p.m., Tuesday, Wednesday, and 7-8.50 p.m., Friday. Fee \$24 Lecture, Tuesday and Wednesday, 7-7.50 p.m., Room 301 Havemeyer Laboratory. Tuesday and Wednesday, 8-9.50 p.m., and Friday, 7-8.50

Laboratory, Tuesday and Wednesday, 8-9.50 p.m., and Friday, 7-8.50 p.m., Room 602 Havemeyer

This course is a continuation of Chemistry e14. It is equivalent to Chemistry -15 required of all third-year students in the combined six-year College and Engineering course, or to Chemistry -12.

Deposit \$15.

Text-book: Steiglitz' Qualitative Analysis, Pt. I.

Prerequisite: Chemistry e14, 14- or -12.

Nors. — Students who have previously completed the greater part of this course may with the consent of the Director, register for the remainder, counting it 1 to 3 points.

Chemistry e41-42 — Organic chemistry. Introductory course. 3 hours' classroom and 6 hours' laboratory work a week in each Session. Credit I, IV, V. 6 points each Session. Dr. Fisher and assistant

7-9.50 p.m., Tuesday, Wednesday and Friday. Fee \$36 each Session Lecture, Tuesday, Wednesday and Friday, 7-7.50 p.m., Room 413 Havemeyer

Laboratory, Tuesday, Wednesday and Friday, 8-9.50 p.m., Room 615 Havemeyer

Instruction is given on the more important classes of organic compounds, as the hydrocarbons, halogen derivatives, nitro-compounds, alcohols, phenols, ethers, aldehydes, ketones, carbohydrates, acids, esters, amines, cyanides and the simple nitrogen heterocycles. The lectures will be illustrated by experiments and material from the Chandler Chemical Museum. The laboratory work includes a study of the more important syntheses and reactions of the different classes of organic compounds. This course is accepted as the equivalent of Chemistry 41-42 and is of special advantage to students of pharmacy and medicine.

Deposit \$25 each Session.

Prerequisite: Chemistry e3-4, e6-7, or the equivalent, and elementary physics.

Chemistry e72 — Quantitative analysis, inorganic. 2 hours' classroom and 7 hours' laboratory work a week. Credit I, IV. 5 points Spring Session. Mr. STILLMAN

7-9.50 p.m., Tuesday, Wednesday and Friday. Fee \$30

Lecture, Wednesday and Friday, 7-7.50 p.m., Room 511 Havemeyer Laboratory, Tuesday, 7-9.50 p.m., and Wednesday and Friday, 8-9.50 p.m., Room 504 Havemeyer

Short course, including typical volumetric, gravimetric, electrolytic and gasometric methods.

Deposit \$15.

Prerequisite: Chemistry e14-15, 14-15 or 11-12.

Chemistry e76 — Elementary microscopy. Credit IV, if taken with related courses. Seven 3 hours' laboratory periods. 1 point Spring Session. Mr. Buswell and assistant

Hours to be arranged. Fee \$6

Instruction in the use of the microscope. Microscopy of starches, spices, textiles, etc. Deposit \$15.

Chemistry e78 — Sanitary bacteriological analysis. 2 hours' classroom and 6 hours' laboratory work a week. Credit IV, if taken with related courses. 5 points Spring Session. Mr. Buswell and Mr. Line

7-8.50 p.m., Tuesday, and 7-9.50 p.m., Wednesday and Friday. Fee \$30 Lecture, Tuesday, 7-8.50 p.m., Room 511 Havemeyer

Laboratory, Wednesday and Friday, 7-9.50 p.m., Room 515 Havemeyer

Practical instruction in bacteriology. Bacteriology of water, sewage, milk, etc. A short course for sanitary engineering students.

Deposit \$15. Prerequisite: Chemistry e14-15.

Chemistry e79 — Sanitary chemical analysis. 2 hours' classroom and 3 hours' laboratory work a week. Credit IV, if taken with related courses. 3 points Winter Session. Mr. Buswell and Mr. Line

7–9.50 p.m., Tuesday, and 7–8.50 p.m., Wednesday. Fee \$18 Lecture, Wednesday, 7–8.50 p.m., Room 511 Havemeyer Laboratory, Tuesday, 7–9.50 p.m., Room 515 Havemeyer

Sewage analysis. Sanitary chemical water analysis. Deposit \$15.

Prerequisite: e72 or 65.

Chemistry e179 — Sanitary chemical analysis. Graduate section of e79 Credit II. Full course Winter Session. Mr. Buswell and Mr. Line 7-9.50 p.m., Tuesday, and 7-8.50 p.m., Wednesday. Fee \$24

Lecture, Wednesday, 7-8.50 p.m., Room 511 Havemeyer Laboratory, Tuesday, 7-9.50 p.m., Room 515 Havemeyer

Deposit \$15.

Prerequisite: Chemistry e72 or 65.

Chemistry e180 — Sanitary analysis. Advanced methods and special problems. Credit II. Full course Spring Session. Mr. Buswell and Mr. Line

7-8.50 p.m., Tuesday, and 7-9.50 p.m., Wednesday and Friday. Fee \$24 Lecture, Tuesday, 7-8.50 p.m.. Room 511 Havemeyer

Laboratory, Wednesday and Friday, 7-9.50 p.m., Room 515 Havemeyer

Deposit \$15. Prerequisite: e72.

For courses in Sanitation see pp. 36, 37, 64, 86, 87, and in Sanitary engineering see p. 43.

# Summer Session Evening Course

# July 10-August 18

Chemistry esA — Elementary general chemistry. Elementary course for students beginning the study of chemistry. 5 hours' lectures, 3 hours' recitations and 6 hours' laboratory a week. Credit I. 4 points Summer Session. Fee \$24. Professor Neish

Lectures, 7-7.50 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 309 Havemeyer

Recitations, 8-8.50 p.m., Tuesday and Thursday, Rooms 309 and 301

Laboratory, 8-9.50 p.m., Monday, Wednesday and Friday, Room 615 Havemeyer

Equivalent to Entrance Chemistry, A, eA1, or eA2.

Prerequisite: The previous study of physics is strongly advised, but not required.

Note. — Chemistry sA, followed by s3-4, e3-4, 3-4, 6-7, or e6-7 is accepted for admission to the college of Physicians and Surgeons.

Text-books: Smith's Elementary Chemistry and A Laboratory Outline of Elementary Chemistry (interleaved).

Deposit \$15.

# CONTEMPORARY LITERATURE

Contemporary literature e1-2 — Modern European literature. Lectures, readings and discussions. 2 points each Session. Dr. Brewster

4.30-5.50 p.m., Wednesday, Room 603 Journalism. Fee \$12 each Session

The course will deal with contemporary European literature. During the Winter Session the work will centre upon Russian literature, considering in some detail the attitude toward life and art of the leading Russian novelists and short-story writers, Gogol. Tolstoy, Dostoievsky, Turgenev, Chekhov, and others. Lectures on Scandinavian and German literature, especially the drama, will complete the work of the Winter Session. The Spring Session will include the study of recent English, French, and Italian literature. Readings will be assigned, and if possible, some class discussions held.

#### EDUCATION

Education eX1 — Methods of using the dramatic instinct in education and recreation. Credit IV. 2 points. Mrs. Alice Minnie Herts Heniger

10-12 a.m., Saturday, Room 305 Schermerhorn.\* Fee \$12 covering full course

This class begins Saturday, October 21, and ends Saturday, April 7.

The following special lecturers will take part in conducting this course: Percival Chubb; Caroline Crawford; John Dewey; G. Stanley Hall; Katherine Jewell Everts; George Pierce Baker; Madelene Barnum; Mary Shaw; Jacob Heniger

This course will be credited for two points for matriculated students in the School of Practical Arts who have their major in physical education. The conditions of this credit may be obtained from the Director of Extension Teaching or from the Secretary of Teachers College. The Board of Examiners of the Department of Education of the City of New York will accept this as a satisfactory professional course towards meeting the conditions of eligibility for license as assistant teacher in day high schools or toward meeting the conditions of exemption from parts of the examination for license for promotion or for license as assistant to principal.

This course is offered to meet the need of elementary and high school teachers, leaders of recreation centres, settlement workers and parents who wish to employ the dramatic method in educational and recreational activities. The instruction will be of a practical nature, enabling the teacher to train the dramatic instinct of all normal children and young people toward purposeful play, developing vocabulary, improving diction and leading the student through constructive thought to creative action. The students in this class are taught through practical demonstration to rehearse groups of children and adults in plays.

#### ENGINEERING

NOTE. — With the exception of Civil engineering e1-2 these courses are intended solely for men already engaged in practical work. They do not correspond to day courses and no university credit is allowed for them. Students should note the prerequisites and are urged to confer with the instructor when in doubt as to the requirements. In connection with the courses in surveying attention is called to the complete practical courses given during the summer at Camp Columbia, Morris, Conn. These courses are open to properly qualified students who have fulfilled the necessary prerequisites. For further information address the Secretary, Columbia University, New York.

# Civil Engineering

Civil engineering e1-2 — Theory of plane surveying. Equivalent to Course CE2 advised for all students in the college preparatory course pre-

<sup>\*</sup> For seven sessions, beginning March 4, the class will meet in The Brinkerhoff Theatre.

liminary to the graduate courses in Civil, Mining, Metallurgical and Sanitary Engineering. Credit I, V. 2 points each Session. Professor Finch

7.30-9.10 p.m., Wednesday, Room 306 Engineering. Fee \$12 each Session

Winter Session — General principle of surveying and surveying instruments. Units and measurements. Errors and limits of precision. Tapes and measurement of distances. The vernier and level bubble. The wye and dumpy levels, theory of leveling, and rods. The compass, magnetic declination and variation, and local attraction. The engineer's transit, measurement of angles, azimuth and traversing. Latitude and departure, error of closure.

Spring Session — Surveys and computations: Land surveying, including farm, city and public land surveys, computation of coördinates and areas, parting off land, description, and relocation. Topographic surveying, transit and stadia method, theory and reduction of stadia measurements, the plane table and government work. Hydrographic, mine and construction surveys.

Prerequisite: Plane trigonometry (see Structural mechanics eX1-X2) or equivalent;

also Winter Session prerequisite for Spring Session.

Text-book: Raymond's Plane Surveying.

Civil engineering e2a — Field problems in plane surveying. 13 points Spring Session. A short course in field work arranged as a supplement to Course e1-2. Professor Finch and assistant

1.30-5, ten Saturday afternoons, and one evening, beginning March 10; meet in Room 407 Engineering. Fee \$9

[Civil engineering eX1-X2 — Theory of railroad surveying. Professor Finch

Given alternate years. Not given in 1916-1917.]

[Civil engineering eX2a — Field problems in railroad surveying. Similar to Course e2a arranged only for students in Course eX1-X2.

Not given in 1916-1917.]

Civil engineering eY1-Y2 — Plain and reinforced concrete construction. 2½ points each Session. Professor Finch

7.30-9.10 p.m., Thursday, Room 306 Engineering. Fee \$15 each Session

Winter Session — Advantages, general definitions. Cement, manufacture, specifications, testing. The aggregate, proportions and strength of concrete. Mixing, depositing, forms. Flexure and design of plain beams. Reinforced beams. Rectangular and "T" beams in bending. Shear and diagonal tension. Slabs. Columns.

and "T" beams in bending. Shear and diagonal tension. Slabs. Columns.

Spring Session — Theory, design and construction. Bearing power of soils, earth
and water pressure and loads. Gravity and cantilever retaining walls. Counterfoot
reservoir wall. Slab and buttress dam. Design of forms for same. Design of pipes
and standpipe. Highway slab and girder bridges. Loft building, including foundations

and typical beams and columns.

No text-book will be used for this course, but students will be furnished with pamphlets, notes and tables. The Spring Session will be largely given over to actual design. The instructor will be present on evenings set for this work, from 7-10, in the drafting room, Room 404 Engineering. As a reference book on the work of the Winter Session, Hool's Reinforced Concrete Construction, Vol. I, and as a general reference, Taylor and Thompson, Concrete, Plain and Reinforced, are recommended.

Prerequisites: Structural mechanics eZ1-Z2 and Mechanical drafting e1-2 or equiva-

lent; also Winter Session prerequisite to Spring Session.

Civil engineering e3-4 — Foundations and masonry construction. 2 points each Session. Professor Finch

7.30-9.10 p.m., Monday, Room 306 Engineering. Fee \$12 each Session

Foundations — General principles. Base pressure. Foundations on rock and earth, safe pressures, borings and tests. Pile foundations, timber and concrete, bearing loads. Spread foundations, steel and reinforced concrete. Excavations for foundations, sheet piles, coffer dams and caissons.

Masonry constructions — Materials, construction and specifications, lime, cement, mortar, building stones, brick, and concrete. Gravity dams and retaining walls. Abut-

ments and piers. Culverts and Voussoir arches. Chimneys.

The course will consist of lectures and problems. Students will be required to work out and submit a number of practical examples.

Prerequisites: — Structural mechanics eZ1-Z2 and Mechanical drafting e1-2 or equivalent.

Reference books — Jacoby and Davis: Foundations of Bridges and Buildings, and Baker's Masonry Construction.

Civil engineering e5-6 — The materials of engineering. 2½ hours' lecture and laboratory work per week. 3 points each Session. Professor Norsworthy

7.30-10 p.m., Tuesday, Room 308 Engineering. Fee \$18 each Session

Properties of materials, tension, compression and shear. Elastic limit and yield point, coefficient of elasticity. Ductility, elongation and reduction of area. Torsion. Ultimate resistance and modulus of rupture. Working stresses. Specifications for standard tests, working stresses of materials used in engineering. Iron and steel and other metals. Timber. Lime, cement and mortar. Concrete and other materials. Testing. Types of machines for various tests. Measuring apparatus and reduction of observations. Standard forms, etc.

This course will consist of a lecture and laboratory period each week. Students will be required to make a complete series of tests (about 15 in all) on the principal materials mentioned above, and to reduce the observations and submit a complete report.

Prerequisite — Structural mechanics eZ1-Z2 or equivalent. Reference book: Johnson's The Materials of Construction.

Civil engineering e75-76 — Hydraulics. 2 points each Session. Professor Finch

7.30-9.10 p.m., Tuesday, Room 306 Engineering. Fee \$12 each Session

Hydrostatics. Laws of hydraulics. Measurement of head pressure and flow. Gages. Manometers. Venturi meter. Current meter. Stream gaging by current meter, floats, etc. Flow through orifices. Weirs, use, construction and discharge. Flow and discharge of pipes. Compound pipes and branches. Flow in and discharge of open channels. Canal design. Graphical solution of hydraulic problems. Backwater. Elements of flow of compressible fluids.

Prerequisite: Structural mechanics eZ1-Z2 or equivalent.

Merriman's Hydrautics will be used as a reference book, but will be supplemented by lecture notes. Students will also be required to work out numerous practical examples.

# Electrical Engineering

Electrical engineering e1 — Elements of electrical engineering. Lectures. 3 points Winter Session. Mr. Keller

7.30-9.10 p.m., Tuesday and Friday, Room 302 Engineering. Fee \$18

Designed to give the student a general knowledge of the principles of electricity and magnetism.

Prerequisites: Algebra, elementary chemistry and physics. Students should consult the instructor as to these prerequisites.

Electrical engineering e2 — Principles of direct-current machinery. Lectures and laboratory. 3 points Spring Session. Mr. Keller

7.30-9.10 p.m., Tuesday and Friday, Room 302 Engineering. Fee \$18

Designed to give the student a knowledge of the construction and characteristics of direct-current generators and motors.

Prerequisite: Electrical engineering e1.

Note. —A deposit of \$10 to cover possible breakage is required of students taking Electrical engineering e2.

Electrical engineering e3 — Elements of alternating currents. Lectures. 3 points Winter Session. Professor Hehre

7.30-9.10 p.m., Monday and Thursday, Room 302 Engineering. Fee \$18

Designed to give the student a general knowledge of the principles of alternating currents.

Prerequisites: Electrical engineering e1 and e2 or equivalent. Students not having credit for e1 and e2 should consult with the instructor as to these prerequisites.

Electrical engineering e4 — Principles of alternating current machinery.

Lectures and laboratory. 3 points Spring Session. Professor Hehre

7.30-9.10 p.m., Monday and Thursday, Room 302 Engineering. Fee \$18

Designed to give the student a general knowledge of the construction and characteristics of alternating current machinery

Prerequisite: Electrical engineering e3.

NOTE. — A deposit of \$10 to cover possible breakage is required of students taking Electrical engineering e4.

# Mechanical Drafting

Drafting e1-2 — Mechanical drafting.\* 6 hours' lecture and drafting-room work per week. Credit Ic, V. 2 points each Session. Professor Harring-ton

7.20-10 p.m., Tuesday and Friday, Room 601 Engineering. Fee \$12 each Session

This course presupposes a fair ability in freehand drawing, and is the equivalent of Drafting 1-2 given to college students looking forward to the new advanced course in engineering.

It should, if possible, be taken in conjunction with Drafting e3-4.

The topics covered will be: the use of instruments; geometrical drafting; lettering; orthographic projection; topographical drafting; elementary working drawings.

Drafting e2a — Mechanical drafting.\* 6 hours' lecture and drafting-room work per week. Credit Ic, V. 2 points Spring Session. Professor Harrington and assistant

7.20-10 p.m., Tuesday and Friday, Room 601 Enginering. Fee \$12

Drafting e1 repeated in the Spring Session for students entering in February. For description see Drafting e1-2 above.

Drafting e3-4 — Descriptive geometry. 2 hours' lectures per week. Credit Ic, V. 2 points each Session. Professor HARRINGTON

6.30-7.20 p.m., Tuesday and Friday, Room 306 Engineering. Fee \$12 each Session

This course will cover elementary problems relating to the point, right line, and plane; generation and classification of lines and surfaces; tangent planes to surfaces of single and double curvature; intersection of surfaces by planes; development of single curved surfaces; intersection of single curved surfaces. If possible, this course should be taken in conjunction with Drafting e1-2.

<sup>\*</sup> Students will be required to furnish their own drafting instruments and materials.

[Drafting e103-104 — Machine elements. 2 hours' lectures and 3 hours' drafting-room work a week. Credit II.

7-9 p.m., Monday, Room 510 Engineering. Drafting, 7-9.30 p.m., Thursday, Room 510 Engineering. Fee \$12 each Session

A study of the details entering into the construction of the machines used in the manufacturing, mining, metallurgical, chemical and transportation industries, as well as in the industries contributing to such service as the news, the telephone, the telegraph and power generation. Elements, such as frames, bearings, shafts, pulleys, flywheels, cams, gears, brakes, fastenings, belts, springs, pipes, valves, fittings, tanks and boilers.

Not given in 1916-17.]

Drafting e6 — Graphics.\* 3 hours' drafting-room work per week. 1 point Spring Session. Professor Harrington

7.20-10 p.m., Tuesday or Friday, Room 601 Engineering. Fee \$6

This course treats of the elements of shades and shadows, perspective, and stone cutting. The solution of problems in the shades and shadows of lines, planes, and groups of solids, including the niche and torus, gives a fair working knowledge of this subject, while a sufficient number of plates are given in perspective and stone cutting to illustrate in detail the principles involved.

Prerequisites: Elements of mechanical drafting and descriptive geometry.

Drafting e7 — Engineering drafting.\* 3 hours' drafting-room work per week. 1 point Winter Session. Professor Harrington

7.20-10 p.m., Tuesday or Friday, Room 601 Engineering. Fee \$6

This course covers the detail drawings for pipe fittings, timber joints, mine cars, and ore skips.

Prerequisite: Elements of mechanical drafting.

Drafting e8 — Structural drafting.\* 3 hours' drafting-room work per week. 1 point Spring Session. Professor Harrington

7.20-10 p.m., Tuesday or Friday, Room 601 Engineering. Fee \$6

This course includes methods used in framing and detailing in structural work, standard connections, beams, columns, plate girders and roof trusses. Prerequisite: Elements of mechanical drafting.

Drafting e8a - Structural drafting\* 6 hours' drafting-room work per week. 2 points Spring Session. Professor Harrington

7.20-10 p.m., Tuesday and Friday, Room 601 Engineering. Fee \$12

This course is similar in character to Drafting e8, but covers the ground more thoroughly.

Prerequisite: Elements of mechanical drafting.

# Summer Session Evening Course

July 10-August 18

Engineering drafting es1 - Mechanical drafting. 2 hours' lectures and 13 hours' drafting-room work per week. Credit I, V. 2 points Summer Session. Mr. Beans

7-10 p.m., Room 601 Engineering. Fee \$12

<sup>\*</sup> Students will be required to furnish their own drafting instruments and materials.

Presupposes a fair ability in freehand drawing and is the equivalent of the course given to students in the Winter Session of the second year in the College course preparatory to Graduate Schools of Engineering.

The topics covered will be: the use of instruments; geometrical drafting; lettering

and orthographic projection.

## Sanitary Engineering

Sanitary engineering eX1 — The design and construction of sewers. Lectures. 2 points Winter Session. Mr. Brown

7.30-9.10 p.m., Monday, Room 301 Engineering. Fee \$12

Separate and combined systems. Calculation of flow. Velocities and grades. Rainfall and run off. Infiltration of ground water. Methods of forecasting population. Volume of sewage. Sewer maps and plans. Interceptors. Overflows. Tide-gates. Siphons. Design of sewers. Flush-tanks. Catch-basins. Man-holes. House-connections. Outfalls.

Reference books: American Sewerage Practice, Vols. I and II, Metcalf and Eddy.

Sanitary engineering eX2 — Sewage treatment. Lectures. 2 points Spring Session. Mr. Brown

7.30-9.10 p.m., Monday, Room 301 Engineering. Fee \$12

Screening. Sedimentation by gravity and by chemical precipitation. Continuous flow tanks. Contact beds. Percolating or trickling filters. Sterilization. Intermittent application to soil with underdrainage. Disposal of sludge. Plants for sewage treatment. Pollution of streams.

Reference books: Metcalf and Eddy, American Sewerage Practice, Vol. III; Fuller,

Sewage Disposal.

Sanitary engineering eY2 — Sanitary design. Lectures. 2 points Spring Session. Mr. Walker

7.30-9.10 p.m., Thursday, Room 301 Engineering. Fee \$12

Detailed design of typical sewage treatment works, including grit chambers, pumping stations, Imhoff tanks, sludge drying beds, sprinkling filters, sand filters, contact beds, disinfection. Design of water filtration plants. Slow sand filters. Rapid sand filters.

For courses in Sanitation see pp. 36, 37, 64, 86, 87.

## Structural Mechanics

Note. — The following courses in structural mechanics are intended only for men engaged in practical work. They do not correspond to day courses and no university credit is allowed for them. For specific courses in architecture, especially in building materials, see page 22 following.

Structural mechanics eX1-X2 — Elements and applications of algebra and trigonometry. 2 points each Session. Mr. CLARK

6.10-7 p.m., Monday and Thursday, Room 408 Avery. Fee \$12 each Session

The aim of this course is twofold: first, to give to the student beginning the study of structural mechanics a clear understanding of the mathematics necessary for further study of the subject; second, to fit him to handle his present practical problems with

greater facility.

The work of the Winter Session will consist of a drill in the principles and applications of elementary algebra, through quadratics, and including graphic methods. In the Spring Session there will be given a course in plane trigonometry and its applications to problems of a practical nature. A thorough drill in the use of logarithms and the slide rule will be included. Students are urged to present for class discussion problems arising in their work.

Structural mechanics eY1-Y2 — Elements and applications of geometry, plane and solid. Mensuration. 2 points each Session. Mr. Clark

7.20-8.10 p.m., Monday and Thursday, Room 213 Hamilton. Fee \$12 each Session

The aim of this course is to develop ability in the student to think clearly, concisely and logically; to give him a clear understanding of the important theorems of geometry and their numerous applications in different lines of work; to develop in him independence in attacking and solving a problem; to derive the formulas of mensuration and to give drill in their use; to find lengths of lines, areas of surfaces, volumes of solids, etc. Special attention will be given to accurate representation of the figures.

Structural mechanics eZ1 — Elements of coplanar statics. 3 points Winter Session. Professor Burnside

6.10-7 p.m., Tuesday and Thursday, Room 510 Fayerweather. Fee \$18

Algebraic and graphic methods are used in parallel; composition and resolution of forees; principles of equilibrium; determination of stresses in simple jointed frames, such as trusses and cranes; centres of gravity and centroids.

Prerequisite: Course eX1-X2, or its equivalent.

Text-book: Maurer's Technical Mechanics, third edition.

Structural mechanics eZ2 — Elements of mechanics of materials. 3 points Spring Session. Professor Burnside

6.10-7 p.m., Tuesday and Thursday, Room 510 Fayerweather. Fee \$18

Continuation of Course eZ1. Moments of inertia and radii of gyration of plane areas built up beam and column sections; direct tension, compression and shear; strengths of beams, columns and riveted joints; deflection of beams.

Prerequisite: Course eZ1.

Text-book: Merriman's Mechanics of Materials.

Structural mechanics eZ3-Z4 — Designs and details of framed structures. 3 points each Session. Professor Schroeder

7-9.30 p.m., Monday and Thursday, Room 601 Engineering. Fee \$18 each Session

Continuation of Course eZ2. Complete designs, including the designing of the details, with general drawings of the same and estimates of costs, will be made for a wooden roof truss, a steel truss, and a plate girder railway bridge. Fixed and moving loads will be considered in connection with bridge stresses. Parts of other structures will be designed and analyzed to illustrate the applications of the fundamentals in the theory, such as column details, riveted connections eccentrically loaded, pin-plates, and pins.

A special feature of the course is that all of the study, calculations and execution necessary for each complete design will be done in the drafting-room under the direction of the

nstructor.

Essentially all of the information required by the student relative to the solution of each design will be given in notes prepared by the instructor. The notes will be used as a text; they illustrate the calculations for, and lay-outs of, structures similar to those assigned as problems and will be supplemented by occasional lectures.

Prerequisites: Mechanical drafting e1-2, Structural mechanics eZ1 and eZ2, or their

equivalents.

Structural mechanics eZ5-Z6 — Estimating for building construction. 3 points each Session. Mr. Whittemore

7.30-9 p.m., Monday and Thursday, Room 613 Fayerweather. Fee \$18 each Session

Plan reading and methods of estimating the quantities of materials required for buildings will be studied. Detailed estimates of costs of materials and labor for all trades will be prepared from the plans of a city building. Instruction will be given as to the restrictions of and methods of procedure under the building laws of New York City.

Prerequisites: Students should consult the instructor before registering for this course

### ENGLISH

# Undergraduate Courses

English eA1-A2 — English composition. Lectures, themes and conferences. Credit I, IV. 3 points each Session. Fee \$18 each Session

Section 1 — 7-8.15 p.m., Monday and Thursday, Room 610 Philosophy. Dr. Wolff

Section 2 — 7-8.15 p.m., Tuesday and Friday, Room 507 Journalism. Dr. Taylor

Section 3-3.10-4.25 p.m., Tuesday and Friday, Room 709 Journalism. Dr. Taylor

Section 4 — 3.10-4.25 p.m., Monday and Thursday, Room 707 Journalism. Dr. Brewster

Section 5 — 4.30–5.45 p.m., Tuesday and Friday, Room 709 Journalism. Mr. Hill

Section  $6-4.30-5.45\,$  p.m., Monday and Thursday, Room 306 Mines. Dr. Brewster

This course corresponds to English A in Columbia College. Students are expected to confer regularly with the instructor at times to be appointed within the conference period immediately following each class.

English eA3-A4 — English composition. Lectures, themes and conferences. Credit I, IV, if taken both Sessions. 1½ points each Session. Dr. Wolff

9-10.15 a.m., Saturday, Room 611 Journalism. Fee \$9 each Session

This course is equivalent to one half of English A. It is offered for teachers and students who desire to gain a knowledge of the principles of rhetoric and English composition as they are now taught in the colleges.

Two one-page themes or one three-page theme a week will be called for. Students are expected to confer regularly with the instructor at times to be appointed within the conference period, 10.15–10.45 a.m. No other engagement should be made for this half-hour.

English eA8 — English composition. Lectures, themes and conferences. Credit I, IV. 3 points Spring Session. Fee \$18

Section 1 — 8.20–9.35 p.m., Monday and Thursday, Room 707 Journalism. Mr. Clark

Section 2 — 3.10-4.25 p.m., Monday and Thursday, Room 609 Journalism. Mr. Hill

Course eA1 given in the Spring Session for students beginning at that time.

English eA9 — English composition. Lectures, themes and conferences. Credit I, IV. 3 points Winter Session. Mr. Clark

8.20-9.35 p.m., Monday and Thursday, Room 707 Journalism. Fee \$18

Course eA2 given in the Winter Session for students who have already had English eA1 or eA8 or the equivalent.

English eB1-B2 — English literature and composition. Lectures, themes and conferences. Credit I, IV. 2 points each Session. Dr. WOLFF

8.45-9.35 p.m., Monday and Thursday, Room 302 Philosophy. Fee \$12 each Session

This course corresponds to English B in Columbia College. It consists in part of the careful and appreciative study of portions of the works of Chaucer, Spenser, Milton, Pope and Wordsworth.

English eB3-B4 — Introduction to poetry. Credit I, IV. 3 points each Session. Dr. Haller

3.10–4.25 p.m., Tuesday and Friday, Room 713 Journalism. Fee \$18 each Session

Intensive study of poetic conceptions and forms in a wide range of types: Golden Treasury, Homer's Iliad (in translation), Spenser's Faeric Queene, Milton's Paradise Lost, selections from Wordsworth, Shelley, Byron, Tennyson and later poets. Introductory study of literary forms, such as epic, drama, ode, sonnet; brief consideration of the laws of versification.

English e1a-2a — English composition. Advanced course. Lectures, themes and theme criticism. Credit I, IV. 13 points each Session. Dr. Wolff

11 a.m.-12.15 p.m., Saturday, Room 709 Journalism. Fee \$9 each Session

Open to students who have passed English A with high standing or to special students of maturity. This course presumes a knowledge of formal rhetoric and training in the essentials of composition, correctness and precision. From two to four pages of manuscript (250-500) words are required each week.

English e1b-2b — The short story. English composition. Theory of fiction writing. Lectures, themes and criticism. 3 points each Session. Miss Hull

3.10-4.25 p.m., Wednesday, Room 609 Journalism. Fee \$18 each Session

Narration without plot; plot narrative. In this course are studied the elements of story writing. After a consideration of biography and autobiography, the class will focus its energy on characterization in fiction, particularly in the short-story. Students wishing to enter this course must submit during the first week a sketch of 500-1500 words. Five papers of 2000-5000 words are required each Session.

English e1c-2c — The short story. Advanced course. English composition. Theory of fiction writing. 3 points each Session. Fee \$18 each Session

Section 1-9.30-10.45 a.m., Saturday, Room 206 Journalism. Dr. Blanche Williams

Section 2 — 8.20-9.35 p.m., Monday, Room 712 Journalism. Miss Scar-Borough

A continuation of English e1b-2b. Story writing studied from the point of the literary critic and of the writer. Details of construction will be investigated and the student called upon to contrive plots. This course, which emphasizes the study of plot, is open to those who have completed Course 1b-2b, or to those who submit during the first week a sketch or story of not more than 5000 words as evidence of competency.

English e1d-2d — The short story. Second advanced course. 4 points each Session. Fee \$24 each Session

Section 1—11 a.m.-12.15 p.m., Saturday, Room 611 Journalism. Dr. Blanche Williams

Section 2 — 8.20-9.35 p.m., Thursday, Room 605 Journalism. Mr. Hill

This course is open only to the following students: those who have done promising work in English ele-e2; those who have not completed Course ele-2c but submit at the outset a story of merit; and those graduate students specializing in English composition who wish advanced training in theory and criticism.

English e3a-4a — Dramatic composition. 3 points each Session. \*Fee \$18 each Session. Mr. Hughes

Section 1 — 11.10 a.m.-12.25 p.m., Saturday, Room 609 Journalism Section 2 — 8.20-9.35 p.m., Friday, Room 605 Journalism

This course is designed for students desiring to write plays. In the beginning of the course each student will be required to submit the scenario of a play to be written during the year. These scenarios will be criticized with reference to their suitability for the stage and the manuscripts prepared for them will be analyzed from the point of view of the dramatist. Specific technical problems will be discussed in class as they come up in the course of the work. Representative recent and current plays will be taken up and analyzed with a view to ascertaining the principles underlying their construction and the causes of their success or failure. Constant practice in plot construction and the preparation of scenarios will be given. In so far as possible the work of the course will be adapted to meet the specific requirements of the individual students.

English e3b-4b — Dramatic composition. Advanced course. 4 points each Session. Mr. Hughes

8-10 p.m., Thursday, Room 611 Journalism. Fee \$24 each Session

Prerequisite: English e3a-4a, or the equivalent, and the consent of the instructor.

English e5a — History and theory of literary criticism. 2 points Winter Session. Dr. Wolff

4-5.40 p.m., Thursday, Room 512 Journalism. Fee \$12

This course will be primarily historical, treating criticism as a series of attempts to authors and critics of the time. The general stock of critical theory will be found to consist of whatever in these attempts proved to be of recurrent or permanent interest. Before undertaking each critical problem, the student will, therefore, be required to read, or to have read, representative pieces of the primary literature out of which the problem arose — the Iliad before the Republic, the Oedipus Rex before the Poetics.

English e9-10 — Advanced course in oral reading. Credit I, IV. 2 points each Session. Professor Tassin

4.10-5.40 p.m., Friday, Room 511 Journalism. Fee \$12 each Session

Modern dramas, short stories, narrative poems. The program will be varied according to the desire of the class.

English e11a-12a — Public speaking. Credit I, IV. 2 points each Session. Fee \$12 each Session. Mr. Halliday

Section 1 — 7.30-9.10 p.m., Wednesday, Room 206 Journalism

Section 2 - 7.30-9.10 p.m., Friday, Room 206 Journalism

This course will deal with public address. Its aim is to give practical training to men and women of whom speaking is demanded in their profession. The first hour will be given to the delivering of prepared speeches, the second to special training before the class.

English e13-14 — Elocution. 2 points each Session. Mrs. Davis 9.20-11 a.m., Saturday, Room 512 Journalism. Fee \$12 each Session

Winter Session — Breathing, carrying tone, distinct utterance, correction of faults (nasality and breathiness in tone and localisms and sluggishness in speech) and a practical study of English phonetics.

Spring Session — A study of the elements of vocal expression (emphasis, phrasing, inflection, pitch, force, time, etc.)

Drill and individual practice by means of short passages of literature will be given at each lesson.

English e15-16 — English prosody. Elementary course. 2 points each Session. Mr. Hooker

8.20-10 p.m., Thursday, Room 713 Journalism. Fee \$12 each Session

A technical study of rhythm and metre in English verse, and of the means by which its various effects are produced; intended not only for those engaged in the composition of original verse, but also for those who desire to achieve a richer appreciation of poetry through the understanding of its technical methods. Illustrations will be drawn from contemporary work as well as from that of accepted masters; attention will be given to the character of different verse-forms, as especially suited to the expression of certain types of thought. This course will run throughout the year; no one will be admitted after the beginning of the course without passing an examination in the work already covered.

English e15a-16a — English prosody. Advanced course. 4 points each Session. Mr. Hooker

2-3.40 p.m., Wednesday, Room 605 Journalism. Fee \$24 each Session

Original work in metrical composition and research into the technical problems of prosody. Individual supervision and criticism of the work of each student. Candidates must have had the elementary course, English e15-16, or its equivalent, and must evince either a natural talent for verse writing or the ability to do research work in the subject.

English e17-18 — Modern literature, English and foreign. Credit I, IV. 2 points each Session. Professor Steeves

7.25-8.15 p.m., Monday and Thursday, Room 605 Journalism. Fee \$12 each Session

This course is a general survey of the principal current literary types, tracing their characteristics from the influences prevalent in the Victorian period and giving attention to foreign artistic sources and parallels. The course requires extended and rapid outside reading of a weekly average of possibly three hundred or four hundred pages. The required reading can generally be found in the branch libraries of the New York Public Library.

English e19-20 — The history of American literature. Credit I, IV. 2 points each Session. Professor Tucker

4.10-5.50 p.m., Monday, Room 302 Mines. Fee \$12 each Session

The course furnishes an account of literary production in America from the beginning to the present day. Special attention is given to literary movements in their relation to the political and social background. Assigned readings in important authors will supplement lectures and recitations.

English e21-22 — English literature from 1780-1830. Credit I, IV. 2 points each Session. Dr. Taylor

7.30-9.10 p.m., Wednesday, Room 507 Journalism. Fee \$12 each Session

This course will deal with English romanticism beginning with Cowper. After tracing the first signs of revolt against eighteenth century thought and ideals, it will treat of the new spirit as it expressed itself in the works of the poets and prose writers of the early part of the nineteenth century. While the course will include the work of men not especially well known, it will aim to embrace in considerable detail the poetry of Wordsworth, Shelley, Keats, and Byron. The work will be conducted by means of assigned readings and lectures.

English e23-24 — English literature from 1830-1890. Credit I, IV. 2 points each Session. Professor Patterson

7-8.40 p.m., Wednesday, Room 512 Journalism. Fee \$12 each Session

A study of Victorian literature, beginning with Carlyle. In the Winter Session the work will centre around Tennyson; in the Spring Session around Browning. Other poets, such as Arnold, Morris, Rossetti and Swinburne, will be studied. The course will be conducted by means of assigned readings and discussions.

English e35a-36a — Shakspere. Credit I, IV. 2 points each Session. Professor Tassin

11 a.m.-12.40 p.m., Saturday, Room 605 Journalism. Fee \$12 each Session

An introduction to the study of Shakspere, the condition and character of his life and work and the technic of his plays studied from the dramatic rather than from the literary point of view.

English e39-40 — The development of the English novel. 2 points each Session. Dr. Brewster

11 a.m.-12.40 p.m., Saturday, Room 507 Journalism. Fee \$12 each Session

The course will trace the development of the English novel from the work of Samuel Richardson to that of Thomas Hardy in relation to other literary movements and to the social and political background. If possible, the recent work of leading contemporary novelists will be considered. The lectures will be supplemented by assigned readings, reports and discussions.

English e41a-42a — Contemporary dramatic literature. 2 points each Session. Mr. CLAYTON HAMILTON

10-11.40 a.m., Saturday, Room 612 Journalism. Fee \$12 each Session

In this course study is made of representative works of the leading modern dramatists from Victor Hugo to Sir Arthur Pinero. Special attention is devoted to the evolution of contemporary stagecraft. The best new plays presented during the current theatre season in New York are also analyzed from the point of view of the dramatic critic. The course is especially helpful to students who desire subsequently to write plays or to write dramatic criticism; it brings the actual theatre of to-day within the reach of academic study.

For a course in contemporary literature see p. 38.

#### Graduate Courses

For students who have already received the Bachelor's degree, these courses may be credited towards the higher degrees.

English e206 — Principles of English usage. Credit II. Full course Spring Session. Professor Krapp

11 a.m.-12.40 p.m., Saturday, Room 610 Philosophy. Fee \$24

Consideration will be given in this course mainly to the principles under which instances of divided use in standard modern English may be grouped.

English e229 — Non-dramatic literature of the sixteenth century. Credit II. Full course Winter Session. Professor Fletcher

11 a.m.-12.40 p.m., Saturday, Room 610 Philosophy. Fee \$24

This course deals with the development of non-dramatic literature in the English renaissance, up to the time of Spenser.

English e235-236 — English literature, 1784-1832. Credit II. Full course each Session. Professor Trent (Winter Session) and Professor Thorndike (Spring Session)

5.10-6 p.m., Monday and Wednesday, Room 610 Philosophy. Fee \$24 each Session

This course covers the history of English literature from the death of Dr. Johnson to the death of Scott. Special stress is laid on Cowper, Burns, Wordsworth, Coleridge, Byron, Shelley and Keats.

## Preparatory Courses

English eV1-V2 — Elementary English. 2 points each Session. Miss DILLER

5-5.50 p.m., Wednesday and Friday, Room 707 Journalism. Fee \$12 each Session

Students in this course will study elementary principles of English grammar, will write frequent short compositions on simple subjects, and make brief oral recitations on assigned topics. Emphasis will be placed on pronunciation and spelling; considerable correction will be done in class. Foreign students and those unfamiliar with English idiom are advised to select this course.

English eW1-W2 — English grammar and composition. 3 points each Session. Fee \$18 each Session. Mr. DUNCAN

Section 1-1.45-3 p.m., Monday and Thursday, Room 609 Journalism Section 2-7-8.15 p.m., Monday and Thursday, Room 612 Journalism

This course is intended for mature students who desire to acquire a thorough knowledge of the elementary principles of English grammar. After a rapid review of the parts of speech and their modifications, a detailed treatment of word elements, phrase elements and clause elements and their relations in sentences will be given. Much time will be devoted to the analysis and synthesis of different types of sentences. Punctuation will be regarded as a system of points to denote grammatical relations, and thus considerable attention will be given this subject. One-page compositions on subjects drawn from life and from the experience of the students will be required regularly. This course is recognized as a credit course for promotion licenses by the Board of Education. Students will be expected to confer regularly with the instructor at such times as he may designate. Students who contemplate taking College entrance English, either English eX1-X2

Students who contemplate taking College entrance English, either English eX1-X2 or eY1-Y2, should have completed this course or its equivalent.

Text-books: Blount and Northup's Elementary English Grammar; Brooks's English Composition, Book II; Woolley's Handbook of Composition.

English eW4 — English grammar. Course eW1 repeated in the Spring Session. 3 points Spring Session. Mr. Duncan

8.20-9.35 p.m., Monday and Thursday, Room 612 Journalism. Fee \$18

English eW5 — English composition. Course eW2 given in the Winter Session. 3 points Winter Session. Mr. Duncan

8.20-9.35 p.m., Monday and Thursday, Room 612 Journalism. Fee \$18

English eX1-X2 — College entrance English. Composition and reading. Themes, conferences, reading of texts, tests, lectures, special oral reports, discussions. 3 points each Session. Mr. Duncan

3.10-4.25 p.m., Monday and Thursday, Room 612 Journalism. Fee \$18 each Session

Designed to aid in preparing for English 1 and 2 as required for admission to college During the Winter Session the literature read will be plays and novels; during the Spring Session, poems and essays. In connection with the reading of literary masterpieces, special attention will be paid to the problem of how to read and to the work of composition planning. The course is, therefore, also suited to the needs of mature persons who, while not desirous of obtaining credit for entrance to college, desire guidance in reading, writing and speaking. The successful completion of this course will count toward the removal of entrance conditions in English. Students will be expected to confer regularly with the instructor at such times as he may designate.

Students who register in this course should have completed English eW1-W2 or its

equivalent.

Text-books: Woolley's Handbook of Composition. Ten classics chosen from the list prescribed by the Committee on Uniform Entrance Requirements.

English ex4 — College entrance English. Course eX1 repeated in the Spring Session. 3 points Spring Session. Dr. Gaston

7-8.15 p.m., Monday and Thursday, Room 707 Journalism. Fee \$18

English eX5 — College entrance English. Course eX2 given in the Winter Session. 3 points Winter Session. Dr. Gaston

7-8.15 p.m., Monday and Thursday, Room 707 Journalism. Fee \$18

English eY1-Y2 — College entrance English. Composition and study of texts. Themes, tests, lectures and discussions. 3 points each Session. Fee \$18 each Session. Mr. Duncan

Section 1-3.10-4.25 p.m., Tuesday and Friday, Room 612 Journalism Section 2-7-9.30 p.m., Tuesday, Room 605 Journalism

This course is designed to aid in preparing for English 2, as required for admission to college. The work will consist of a detailed study of the books in the study list, a thorough review of English literature, and the writing of many themes. Students will be called upon to do much written work in exposition in preparation for each lesson. The successful completion of this course will count toward the removal of entrance conditions in English. Students will be expected to confer regularly with the instructor at such times as he may designate.

Students already registered in this course who show obvious inability to carry the

work will be transferred to Course eX1-X2.

Prerequisite: English eX1-X2 or its equivalent (the third year of high school course). Text-books: Woolley's Handbook of Composition; Moody and Lovett's A First View of English Literature; Mitchill and Carpenter's Exposition in School-Room Practice. Four classics chosen from the list prescribed by the Committee on Uniform Entrance Requirements.

English eY4 — College entrance English. Course eY1 repeated in the Spring Session. 3 points Spring Session. Mr. Pang

7.30-10 p.m., Wednesday, Room 605 Journalism. Fee \$18

English eY5 — College entrance English. Course eY2 given in the Winter Session. 3 points Winter Session. Mr. Pang

7.30-10 p.m., Wednesday, Room 605 Journalism. Fee \$18

English eZ1-Z2 — English spelling. 1 point each Session. Fee \$6 each Session. Mr. Duncan

Section 1 — 5-5.50 p.m., Wednesday and Friday, Room 507 Journalism Section 2 — 6.10-7 p.m., Monday and Thursday, Room 612 Journalism

This course is designed for mature students who spell badly. An effort will be made to teach spelling through the threefold appeal to the eye, the ear and the touch. While considerable time will be devoted to phonics, syllabication and rules of orthography, much more time will be given to actual spelling. The aim will be to discover and correct the deficiencies of the individual student. Attention will be given to words in common use and words commonly misspelled rather than to unfamiliar and technical words. Each student will be required to keep an alphabetical list of all words he misspells.

Text-book: Eldridge's Business Speller and Vocabulary.

Business English e1-2 — Business English and commercial correspondence. 3 points each Session. Mr. Duncan

7.30-9.20 p.m., Wednesday, Room 612 Journalism. Fee \$18 each Session

This course is intended for office assistants, private secretaries and those who wish to become proficient in effective business communication. The aim is to teach how to use words in such a way as to make people act. The principles of literary composition will be applied to commercial correspondence. Business situations will be analyzed, letters classified into type forms, and the requisites of each class will be exemplified by many models. The psychology of advertising and the sales letter will be analyzed, and principles derived from this analysis will be applied in actual practice. The course will be not merely theoretical, but practical. Every student will be required to write several letters each week, and no one who has not sufficient time for such written work should take this course.

Special consideration will be given to letters of application, letters of complaints, sales letters, follow-up letters and collection letters.

A prerequisite to this course is a knowledge of the principles of elementary English grammar.

Text-books: Lewis's Business English; Woolley's Handbook of Composition.

# Summer Session Evening Courses

July 10-August 18

English esW1 — English grammar and composition. 2 points Summer Session. Mr. Duncan

7.30 p.m., Room 609 Journalism. Fee \$12

Intended for mature students who desire to acquire a thorough knowledge of the elementary principles of English grammar. After a rapid review of the parts of speech and their modifications, a detailed treatment of word elements, phrase elements and clause elements and their relations in sentences will be given.

Much time will be devoted to the analysis and synthesis of different types of sentences. Punctuation will be regarded as a system of points to denote grammatical relations and thus considerable attention will be given this subject. One-page compositions on subjects drawn from life and from the experience of the students will be required regularly.

Students completing this course may continue in September by electing English eW5 or if especially competent, English eX1, in Extension Teaching.

English esX — College entrance English. 4 points Summer Session. Dr. S. W. Patterson

7.30-9.30 p.m., Room 612 Journalism. Fee \$24

Designed to aid in preparing for English 1, as required for admission to college. Special emphasis will be placed upon grammar and composition, though reading of texts will be required as well. Lectures and discussions. Study of the sentence and good usage; essays developing a theme through several paragraphs; the subjects will be drawn from

the books read, from the student's other studies, and from his personal knowledge and experience quite apart from reading.

Students already registered in this course, who show obvious inability to carry the

work, will be transferred to English esW1.

The successful completion of English esX will count toward the removal of entrance conditions in English. Students completing this course may elect English eY1 in Extension Teaching.

### FINE ARTS

Architecture e29 — Renaissance architecture. Credit I. 1 point Winter Session. Curator Bach

4-4.50 p.m., Monday, Room 407 Avery. Fee \$6

The architecture of the Renaissance in Italy and France. Analytical and critical discussion of historic development and great examples of architecture since 1420.

No credit will be given for e29 unless taken with one other course.

Architecture e30 — Renaissance and modern architecture. Credit I. 1 point Spring Session. Curator Bach

4-4.50 p.m., Monday, Room 407 Avery. Fee \$6

The architecture of the Renaissance in Germany, Spain, and the Low Countries; architecture of the 19th century in Europe; American architecture, modern and contemporary developments and tendencies; analytical and critical discussion of historical development and great examples of architecture since 1420.

No credit will be given for e30 unless taken with one other course.

Architecture e31-32 — Ancient ornament. Credit I, V. 1 point each Session. Mr. Hamlin

6-6.50 p.m., Friday, Room 407 Avery. Fee \$6 each Session

General classifications; origins, primitive and savage ornament; the historic ornament of Egypt, Assyria, Persia, Greece and Rome, including Ægean, Cypriote, Phoenician and Etruscan ornament; the development of the styles, the common motives and patterns of both architectural ornament and the minor arts.

No credit will be given for Architecture e31-32 unless taken with one other course.

Architecture e37 — Medieval ornament. Credit I. 1 point Winter Session. Mr. Hamlin

6-6.50 p.m., Tuesday, Room 407 Avery. Fee \$6

The ornament of the Early Christian, Byzantine, Romanesque and Gothic styles both in architecture and the minor arts; the development of styles, motives and patterns.

No credit will be given for Architecture e37 unless taken with one other course.

Architecture e38 — Modern ornament. Credit I. 1 point Spring Session. Mr. Hamlin

6-6.50 p.m., Tuesday, Room 407 Avery. Fee \$6

The ornament of the Renaissance in Italy, France, Germany, Spain, the Netherlands and England; American "Colonial" ornament; developments in the 19th century in Europe and America; modern phases and tendencies in ornament.

No credit will be given for Architecture e38 unless taken with one other course.

Fine arts e51a — Sculpture and the decorative arts. A study of the originals in the Metropolitan Museum of Art, including the Morgan and Altman collections. 2 points Winter Session. Fee \$12. Dr. Kriehn

Section 1 — 10.30 a.m.-12.10 p.m., Saturday, Metropolitan Museum

Section 2 - 2.30-4.10 p.m., Friday, Metropolitan Museum

Section 3 — 8.15-9.55 p.m., Saturday, Metropolitan Museum. Begins October 14

This course, combined with Fine arts e52a, offers a year's systematic study of the most important art objects in the Metropolitan Museum. It is designed especially to teach the appreciation of sculpture and the decorative arts, and to outline briefly their history. Among the subjects treated, besides sculpture proper, will be ivories, enamels, ceramics, small bronzes, terracottas, furniture, and other decorative arts. Advantage will be taken of the J. P. Morgan collection, in studying the decorative arts. Special attention will be devoted to the needs of teachers and university students, for whom Section 1 is designed. The course is accepted as a thirty-hour collegiate course by the Board of Education of New York City. Use will be made of the important Museum library, with its collection of photographs and other reproductions.

Fine arts e52a — The paintings of the Metropolitan Museum of Art. A study of the originals in the Museum, including the Morgan and Altman collections. 2 points Spring Session. Fee \$12. Dr. KRIEHN

Section 1 - 10.30 a.m.-12.10 p.m., Saturday, Metropolitan Museum

Section 2 - 2.30-4.10 p.m., Friday, Metropolitan Museum

Section 3 — 8.15-9.55 p. m., Saturday, Metropolitan Museum

Planned for all who wish to learn how to Judge and enjoy painting. A continuation of the preceding course, but may be taken independently. While special attention will be given to the technical qualities of painting, its meaning will not be neglected. Each Session will be devoted to a school or to individual masters of painting; but the treatment will be in historic sequence, thus affording an outline of the history of painting. Among the topics treated are Italian painting, both primitive and developed; the early Netherlandish and German schools; Flemish and Spanish masters; Dutch painting, with special emphasis on Rembrandt (Altman collection); the old English masters (Morgan collection); French painting of the eighteenth and nineteenth centuries, with emphasis on the Barbizon school (Vanderbilt collection); modern European painting; American painting, both early and contemporary. Students, teachers, and others wishing to take the examination should enroll, if possible, in Section 1, which is especially designed for them.

Fine arts e53-54 — Outlines of art history. 2 points each Session. Dr. Kriehn

2.30-3.45 p.m., Wednesday, Metropolitan Museum. Begins October 11. Fee \$12 each Session

A supplement to Fine arts e51a and e52a, but may be taken independently and without previous preparation. A general course; it treats the great epochs of art history in the western world, with emphasis on that branch of art, painting, sculpture or architecture, in which the nation or epoch found its highest expression. The subjects are arranged in historic sequence and are correlated, as far as possible, with those of the two preceding courses. During the Winter Session the emphasis will be placed on architecture and sculpture, during the Spring Session on painting. A full syllabus will be used, and the lectures will be illustrated with the stereoptican. Use will be made of the Museum's collection of casts, the photographs and reproductions in color of the print room, and of the important Museum library.

Fine arts e101 — History of ancient art. Credit II. 2 points Winter Session. Curator Bach

4-4.50 p.m., Tuesday and Thursday, Room 407 Avery. Fee \$12

A general course in the history of ancient art; the architecture, sculpture, painting and minor arts of ancient Egypt, Assyria, Persia, Greece and Rome during classic times and during the periods illustrating the Early Christian and Byzantine styles. Analysis of art tendencies and critical discussion of style characteristics.

Fine arts e102 — History of medieval art. Credit II. 2 points Spring Session. Curator Bach

4-4.50 p.m., Tuesday and Thursday, Room 407 Avery. Fee \$12

A general course in the history of art during the Middle Ages. The architecture, sculpture, painting and minor arts of the Romanesque and Gothic styles in Italy, France, England, Germany, Spain and the Netherlands. Analytical and critical discussion of historic development, characteristics and chief examples of the medieval styles.

### **GEOGRAPHY**

Geography e25 — Physical geography of the atmosphere and oceans. Lectures and laboratory work. Credit I, IV. 3 points Winter Session. Mr. LOBECK

8.20-9.50 p.m., Monday and Thursday, Room 401 Schermerhorn. Fee \$18

The first part of this course consists of an introductory discussion of the earth as a globe; latitude, longitude and time; methods of map projection; the geographic effects of the earth's rotation and revolution and of terrestrial magnetism. The major part of the time is devoted to consideration of the constitution, temperature, and pressure of the atmosphere; weather predictions and the making of weather maps; climatic provinces. In connection with the ocean the following topics will be considered: The composition and temperatures of ocean water; ocean currents and their effects on navigation, climate, and the distribution of food fishes; tides and their influence on harbors, navigation, and sewage disposal; wave action and its effect on shores and harbors.

Special attention will be paid to the needs of those engaged in, or looking forward

to, the teaching of elementary physical geography.

Geography e26 — Physical geography of the lands. Lectures and laboratory work. Credit I, IV. 3 points Spring Session. Mr. Lobeck

8.20-9.50 p.m., Monday and Thursday, Room 401 Schermerhorn. Fee \$18

This course deals primarily with the origin and evolution of the surface features of the earth. The chief topics considered are: The work of rivers, glaciers, waves, and winds, and the evolution of the forms which they produce; the different types of plains, plateaus, mountains and volcanoes, and their stages of development under stream erosion; the representation of land forms by topographic maps, block diagrams and other methods of illustration.

As in Physical geography e25, special attention will be given to the needs of those members of the class who are engaged in, or looking forward to, the teaching of ele-

mentary physical geography.

### GEOLOGY

Geology e1 — General geology. A general introduction to the subject of geology. Lectures and laboratory work. Credit I, IV. 3 points Winter Session. Dr. Reeds

8.20-10 p.m., Wednesday and Friday, Room 401 Schermerhorn. Fee \$18

This course covers an introduction to the common rocks, their structure, origin, and occurrence in nature; rock weathering and its products, geological activities of the air, the streams and the sea; characteristics and work of glaciers, volcances and earthquakes.

The laboratory work consists of a study and identification of common rocks, drawing of profiles and structure sections, interpretation of topographical maps, etc. There will be several field trips on Saturday afternoons.

No prerequisite. Equivalent to Geology 1 in Columbia College. A knowledge of elementary chemistry is desirable.

Text-book: Chamberlin and Salisbury, College Geology.

Geology e2 — Historical geology. The origin of the earth and its development — succession of plant and animal life. Lectures and laboratory. Credit I, IV. 3 points Spring Session. Dr. Reeds

8.20-10 p.m., Wednesday and Friday, Room 401 Schermerhorn. Fee \$18

This course deals with the origin of continents and ocean basins and their development during successive geologic periods, characteristic sections and their interpretations, study of important types of fossils as indication of geologic age; the glacial period and the antiquity of man; development of surface features or physiography.

The laboratory work consists of the study of maps, the making of sections and the identification of fossils, followed by work with physiographic models. There will be

several excursions on Saturday afternoons in the spring.

Prerequisite: Geology 1 or Geology e1 or s1.

Text-books: Chamberlin and Salisbury, College Geology; Grabau, Syllabus of Historical Geology; Pirsson and Schuchert, Geology.

Geology e3 — Lithology. An introduction to the study of minerals and rocks. Recitations and laboratory work. Credit IV. 3 points Winter Session. Mr. KNAPPEN

7-8.20 p.m., Tuesday and Friday, Room 402 Schermerhorn. Fee \$18

The methods of determining minerals, especially rock-forming minerals; classification of rocks; laboratory practice with both minerals and rocks. The object is to attain facility in sight recognition and discrimination of these natural products.

Text-book: Kemp's Handbook of Rocks.

### GERMAN

German eA1-A2 — Elementary course. Credit I, IV. 3 points each Session. Fee \$18 each Session

Section 1 — 4.30–5.45 p.m., Tuesday and Friday, Room 712 Journalism. Mr. Eyster

Section 2 — 8.35-9.50 p.m., Monday and Thursday, Room 406 Hamilton. Mr. Scholz

Section 3-7-8.15 p.m., Tuesday and Friday, Room 402 Hamilton. Mr. Shears

This course familiarizes the beginner with the common vocabulary and the fundamental grammatical facts of the language so as to enable him to read easy German at sight. Reading forms part of the work from the beginning, together with grammar study, easy exercises in composition, and a considerable amount of colloquial practice in the phrases of everyday life. Although this course is intended for beginners it may be taken with profit by those who have some previous knowledge of the language but are deficient in grammar. Students entering in February should take Course eA8. For Course eA1 no previous knowledge of German is required.

The entire course completes the college entrance requirement in elementary German.

German eA3-A4 — Elementary course. Equivalent to Course eA1. Credit I, IV. 1½ points each Session. Mr. Bach

10-11.15 a.m., Saturday, Room 707 Journalism. Fee \$9 each Session

This course, continuing throughout the year, is equivalent to Course eA1. The student may complete the requirement in elementary German for college entrance or for a degree by taking eA2, eA5-A6, or (if specially proficient in eA3-A4) sA3.

Prerequisite to eA4: eA3 or sA1. For Course eA3 no previous knowledge of German

is required.

German eA5-A6 — Elementary course. Equivalent to Course eA2. Credit I, IV. 1½ points each Session. Mr. Bach

11.30 a.m.-12.45 p.m., Saturday, Room 707 Journalism. Fee \$9 each Session

Prerequisite: German eA1, eA3-A4 or sA1 and sA2.

This course, continuing throughout the year, is equivalent to Course eA2.

German eA8 — Elementary course. Credit I, IV. 3 points Spring Session. Fee \$18

Section 1-4.30-5.45 p.m., Tuesday and Friday, Room 713 Journalism. Mr. Gray

Section 2 — 8.35-9.50 p.m., Monday and Thursday, Room 408 Hamilton. Mr. Shears

Equivalent to Course eA1 of the Winter Session (for description see above); followed by eA9 (equivalent to eA2), given in the Winter Session.

German eA9 — Elementary course. Credit I, IV. 3 points Winter Session. Fee \$18

Section 1 — 4.30-5.45 p.m., Tuesday and Friday, Room 713 Journalism. Mr. Gray

Section 2 — 8.35-9.50 p.m., Monday and Thursday, Room 408 Hamilton. Mr. Shears

Follows Course eA8; equivalent to eA2 of the Spring Session (for description see above)

German eB1-B2 — Intermediate course. Credit I, IV. 3 points each Session. Fee \$18 each Session

Section 1 — 4.30-5.45 p.m., Tuesday and Friday, Room 302 Philosophy. Mr. Scholz

Section 2 — 7–8.15 p.m., Monday and Thursday, Room 402 Hamilton. Dr. Böhme

This course is intended for students who have satisfied the college entrance requirement in elementary German or have taken Course eA1-A2 or an equivalent. Course eB2 completes the requirement in intermediate German for college entrance or for a degree.

The work of this course includes the reading (partly at sight) of about five hundred pages of moderately difficult prose and verse by standard modern and classical authors; grammatical instruction, beginning with a rapid review of the elements and embracing the fundamental principles of syntax and word-formation; exercises in composition and free reproduction, oral and written, with some colloquial practice. The texts studied will be selected with reference to variety of style and vocabulary and will include Freytag's Die Journalisten, Heine's Harzreise, and Schiller's Withelm Tell.

Prerequisite: German eA2, eA5-A6, or sA3 or an equivalent.

Students will require at the beginning of this course Baumbach's Der Schwiegersohn, edited by Florer and Lauer (Allyn and Bacon), and Thomas' Practical German Grammar (Holt).

German eB3-B4 — Shorter intermediate course. Credit I, IV. 2 points each Session. Professor HAUCH

9-10.40 a.m., Saturday, Room 308 Philosophy. Fee \$12 each Session

This course is equivalent in hours to two-thirds of German eB1-B2 and includes the more important work of the longer course, with a smaller amount of reading (about 350 pages) and of practice in writing and speaking. Students proficient in this course are able to pass the college entrance examination in intermediate German. If supplemented by Course e3-4 or s3-4, it will be accepted in satisfaction of the intermediate requirement for admission or for a degree.

Prerequisite: as for Course eB1-B2.

German eB6 — Intermediate course. Credit I, IV. 3 points Spring Session. Professor Schulze

4.30-5.45 p.m., Tuesday and Friday, Room 505 Journalism. Fee \$18

Follows Course eA9; equivalent to Course eB1 of the Winter Session (for description see above).

German eB7 — Intermediate course. Credit I, IV. 3 points Winter Session. Professor Schulze

4.30-5.45 p.m., Tuesday and Friday, Room 505 Journalism. Fee \$18

Follows Course eB6; equivalent to Course eB2 of the Spring Session (for description see above).

German eE1-E2 — Readings in science. Credit I. 3 points each Session. Mr. Scholz

7-8.15 p.m., Monday and Thursday, Room 406 Hamilton. Fee \$18 each Session

This course is designed to enable the student to read difficult German with facility in order that he may consult technical journals and works of reference in that language in connection with his later professional studies.

For students who intend to take the six-year Collegiate and Engineering Course.

Equivalent to the prescribed course in Columbia College.

Prerequisite for Course eE1: eB2, eB7, or an equivalent; for eE2: eE1.

German eE4 — Readings in science. Credit I. 3 points Spring Session. Mr. Scholz

4.30-5.45 p.m., Monday and Thursday, Room 505 Journalism. Fee \$18 Equivalent to Course eE1 of the Winter Session (for description see above). Prerequisite: as for Course eE1.

German eE5 — Readings in science. Credit I. 3 points Winter Session. Mr. Scholz

4.30-5.45 p.m., Monday and Thursday, Room 505 Journalism. Fee \$18 Equivalent to Course eE2 of the Spring Session (for description see above). Prerequisite as for Course eE2.

German eM1-M2 — Readings in medical German. Elementary course. 2 points each Session. Dr. HERRMANN

7-9 p.m., Tuesday, College of Physicians and Surgeons, 437 West 59 Street. Fee \$12 each Session

(For description see German eM7 below.)

German eM4 — Readings in medical German. Elementary course. 2 points Spring Session. Dr. Herrmann

7-9 p.m., Wednesday, College of Physicians and Surgeons, 437 West 59 Street. Fee \$12

Equivalent to Course eM1. (For description see German eM7 below.)

German eM7—Readings in medical German. Advanced course. 2 points Winter Session. Dr. Herrmann

7-9 p.m., Wednesday, College of Physicians and Surgeons, 437 West 59 Street. Fee \$12

These courses are intended for medical students and practitioners who wish to acquire facility in reading medical books and journals in German. They will also afford some practice in hearing German spoken, preparatory to following scientific lectures in that language.

Courses eM1 and eM4 require no previous knowledge of German, but may be taken with advantage by students who have once possessed an elementary reading knowledge and need a rapid review of the elements of grammar before entering upon the study of

technical texts. Course eM7 presupposes a good general reading knowledge and fair ability to understand the spoken language. Since these courses are not credited for a degree, there is no fixed requirement and the work will be arranged according to the needs of students.

Students will require for Course eM1, Ball's German Drill Book (Heath), and selected readings to be assigned; for Course eM7, Aschoff's Pathologische Antomie, Band II.

German eZ1 — Practice in writing. Short course for graduate students; without credit. 2 points Winter Session. Professor Hauch

4.10-6 p.m., Friday, Room 405 Avery. Fee \$12

This course will consist of a topical review of German inflections and syntax, with abundant practice in writing and hearing the language. It is intended only for graduate students who have a somewhat extensive reading knowledge, but are deficient in composition and the ability to understand spoken German.

German e3-4 — Composition and oral practice. Intermediate course. Credit I, IV. 1½ points each Session. Fee \$9 each Session. Dr. Betz

Section 1 — 11 a.m.-12.15 p.m., Saturday, Room 302 Philosophy Section 2 — 8.30-9.45 p.m., Monday, Room 402 Hamilton,

This course aims to meet the demand for instruction looking toward a practical command of the German language. It is intended for students who possess an elementary reading knowledge (the equivalent of Course eA2 or eA9 or eA6), but previous practice in oral expression is not regarded as a prerequisite. The course may be taken with advantage by students who are taking, or have taken, Course eB1-B2 or eB3-B4.

From the outset simple German will be employed as far as possible by instructor and student alike. The subjects pursued and the methods employed will depend in large measure upon individual needs. The conversation will be based upon easy German narrative prose, short poems and, so far as may be practicable, upon daily life and current events, and will be supplemented with frequent dictation exercises. The composition work will consist of translations into German and of original themes upon subjects discussed in class.

German e5a-6a — Introduction to the classics. Selected works of Goethe, Schiller and Lessing. Credit I, IV. 2 points each Session. Professor Hervey 3.20-5 p.m., Wednesday, Room 406 Hamilton. Fee \$12 each Session

This course aims to make the student familiar with representative works of the classical period and the outlines of its history, and to increase the student's command of vocabulary and idiom by means of supplementary sight reading and by interpretation of the text without the medium of translation.

The course will include the reading and study of selected dramas of Lessing, Goethe and Schiller, with brief discussion of other works in connection with assigned private reading. As the course affords but little practice in speaking and writing German, it is recommended that Course e3-4 or e11-12 be taken in connection with it.

Prerequisite: Course eB2, eB4, eB7, or an equivalent.

Text-books required at the beginning: Lessing's *Emilia Galotti*, edited by Winkler (Heath); Rolleston's *Life of Lessing*, published in the "Great Writers" series (Walter Scott, London).

German e11-12 — Composition and oral practice. Advanced course. Credit I, IV. 1½ points each Session. Professor HAUCH

11 a.m.-12.15 p.m., Saturday, Room 308 Philosophy. Fee \$9 each Session

Intended to continue the work of Course e3-4 or s3-4, but has at the same time a distinctly literary content. It presupposes a good reading knowledge and fair ability to understand the spoken language. This course will be conducted wholly in German. The conversation will be upon topics chosen from the field of literature, daily life and current events. The composition work will consist in the rendering of outlines of the literature read and in the preparation of original themes.

Students will require at the beginning of this course Buchheim's Balladen und Romanzen

(Macmillan).

German e101-102 — History of German literature. Winter Session from 800 to 1500 A.D.; Spring Session from 1500 to 1800 A.D. Credit II. Half course each Session. Professor Braun

9-10.40 a.m., Saturday, Room 302 Philosophy. Fee \$12 each Session

The course consists of lectures, readings from Thomas' Anthology, and essays or reports on assigned topics. The lectures introduce the student to the more important writers and writings and aim to give a clear, though very general, idea of the character of epochs, and the growth and decay of literary tendencies.

German e103-104 — Goethe's Faust. First and second parts. Credit II. Half course each Session. Professor Thomas

9-10.40 a.m., Saturday, Room 508 Philosophy. Fee \$12 each Session

This course, intended for the enjoyment of Faust as poetry, consists of the reading and interpretation, by lecture and discussion, of the entire poem with a few unimportant omissions. Attention is given to its genesis and its significance in the study of Goethe's life and works, to its ethical import and artistic character as a whole.

Prerequisites: Course e5a-6a or equivalent, and a reading knowledge of German. Students will require for this course Goethe's Faust. First and Second Parts, 2 vols., edited by Calvin Thomas (Heath).

German e147-148 — Deutsche Stilübungen und Wortstudien. Credit II. Half course each Session. Professor HEUSER

11 a.m.-12.40 p.m., Saturday, Room 508 Philosophy. Fee \$12 each Session

Für Vorgeschrittene, besonders Lehrer, die sich im schriftlichen Gebrauch der deutschen Sprache vervollkommnen wollen. Kleine wöchentliche Aufsätze, über moderne deutsche Einrichtungen sollen den Besprechungen in der Klasse zu Grunde gelegt werden.

The attention of students in German is called to the evening classes in Spoken languages, described in a special circular.

# Summer Session Evening Courses

July 10-August 18

German esA1 — Elementary course. Credit I. 2 points Summer Session. Mr. Palmblad

6.45 p.m., Room 605 Journalism. Fee \$12

Equivalent to German sA1. Students completing this course with special proficiency may continue their study of German by electing German eA9, or eA5-A6 in Extension Teaching in September.

German esA2 — Elementary reading and oral practice. Credit I. 2 points Summer Session. Mr. PALMBLAD

7.40 p.m., Room 605 Journalism. Fee \$12

Equivalent to German sA2. Parallel with German esA1 and open only to those who are taking that course or German sA1. Students completing this course, together with Course esA1, may continue by electing German eA9, eA5-A6 or eB1 in Extension Teaching.

#### GREEK

Greek e1 — Elementary Greek. Credit I, IV, if followed by Greek e2. 3points Winter Session. Dr. Reiley

4.30-6 p.m., Monday and Thursday, Room 406 Journalism. Fee \$18

This course is intended for students who wish to learn the elements of classical Greek. No previous knowledge of the language is required. The course will cover a careful study of the fundamental forms, idioms and grammatical principles of Attic Greek prose. Reading will form part of the work from the beginning and there will be constant practice, both oral and written, in the translation of easy English into Greek.

Text-book: Benner and Smyth, Beginner's Greek Book.

The same as Greek 1 in Columbia College.

Greek e2 — Xenophon and sight translation. Credit I, IV. 3 points Spring Session. Dr. Reiley

4.30-6 p.m., Monday and Thursday, Room 406 Journalism. Fee \$18

This course consists of readings from Xenophon's Anabasis. It will also include constant practice in eight translation and some oral and written work in Greek prose composition.

Prerequisite: Greek e1 or its equivalent. Text-book: Murray, Xenophon's Anabasis. The same as Greek 2 in Columbia College.

Greek e3 — Homer. Credit I, IV. 3 points Winter Session. Dr. Reiley 7-8.15 p.m., Monday and Thursday, Room 303 Hamilton. Fee \$18

This course will cover the first three books of the *Iliad*. Although the course will be primarily literary in purpose, it will include a study of constructions, poetical forms, and prosody.

Prerequisite: Greek e2 or its equivalent. The same as Greek 3 in Columbia College.

### HISTORY

History eX1 — American history. Texts, discussions, readings, notes, maps. 3 points Winter Session. Mr. Smith

4.30-5.45 p.m., Tuesday and Friday, Room 306 Engineering. Fee \$18

This course aims to cover the requirements for college entrance and to give a brief survey of the essential facts of American history from the earliest discoveries to the present time. The study will give due emphasis to political, territorial, commercial, industrial and social development. The successful completion of this course will count toward the removal of entrance conditions in history.

History eX2 — American history. Texts, discussions, readings, notes, maps. 3 points Spring Session. Mr. Smith

11 a.m.-12.15 p.m., Tuesday and Friday, Room 609 Journalism. Fee \$18

Course eX1 repeated in the Spring Session.

History eX3 — Ancient history. Texts, discussions, readings, notes, maps. 3 points Winter Session. Mr. Smith

11 a.m.-12.15 p.m., Tuesday and Friday, Room 609 Journalism. Fee \$18

This course aims to cover the requirements for college entrance and to give a brief survey of the essential facts of ancient history from the earliest times to the age of Charlemagne. The study will present the life of the peoples, their social and political development, and the growth and expansion of the nations of the ancient world. The successful completion of this course will count toward the removal of entrance conditions in history.

History eX4 — Ancient history. Texts, discussions, readings, notes, maps. 3 points Spring Session. Mr. Smith

4.30-5.45 p.m., Tuesday and Friday, Room 306 Engineering. Fee \$18

Course eX3 repeated in the Spring Session.

History eA1 — The foundations of modern Europe. Lectures, readings and discussions. Credit I, IV. 3 points Winter Session. Fee \$18

Section 1 — 4.30-5.45 p.m., Monday and Thursday, Room 707 Journalism. Professor Kendrick

Section 2 — 7-8.15 p.m., Tuesday and Friday, Room 707 Journalism. Dr. Evans

After a brief survey of the contributions of the ancient world and of the middle age to European civilization, the course will deal with important political, economic and intellectual achievements from the fifteenth century to the eighteenth. It will treat of the spirit of reform and of revolt, the expansion of Europe, monarchy by divine right and the various aspects of the "old régime."

Texts: Hayes, Syllabus of Modern History; Robinson and Beard, Development of

Modern Europe, 2 vols.

This course is equivalent to History A1 as given in Columbia College.

History eA2 — Modern and contemporary history. Lectures, readings and discussions. Credit I, IV. 3 points Spring Session. Fee \$18

Section 1 — 4.30-5.45 p.m., Monday and Thursday, Room 512 Journalism. Professor Kendrick

Section 2 — 7-8.15 p.m., Tuesday and Friday, Room 707 Journalism. Dr. Evans

This course is designed as an introduction to current national and international problems. The principal topics will be the intellectual achievements of the eighteenth century, the French Revolution with reference to political and economic changes, the work of Napoleon in reforming France and in reshaping the map of Europe, the industrial revolution, the development of Italian and German unity, the Third French Republic, the rise of Russia, modern social problems and imperialism in Africa and the Orient.

This course is equivalent to History A2 as given in Columbia College.

History eA9 — The formation of the United States. Lectures, readings and discussions. Credit I, IV. 3 points Winter Session. Mr. Fox 7-8.15 p.m., Monday and Thursday, Room 408 Hamilton. Fee \$18

After a survey of the European background of American history and the establishment in the New World of European institutions of contrasted types, attention is fixed upon the English settlements, their development, and their experience with the colonial system seeking to protect and control them, resulting finally in revolt, union and the organization of the United States.

Syllabus: Schuyler and Fox, Syllabus of American History.

This course is equivalent to History A9 as given in Columbia College, and forms an introduction to the advanced study of early American history.

History eA10 — The development of American nationality. Lectures, readings and discussions. Credit I, IV. 3 points Spring Session. Mr. Fox 7-8.15 p.m., Monday and Thursday, Room 408 Hamilton. Fee \$18

Beginning with the triumph of Jeffersonian democracy, this course considers our foreign relations culminating in the War of 1812, and traces the influence of manufactures, the frontier and slavery upon the sentiment of nationalism. The Civil War is treated with emphasis upon its political and constitutional phases; followed by a survey of reconstruction in the southern states, after which attention is paid to the development of railroads, the conflicts of capital and labor, currency and the tariff, imperialism and political readjustment to meet new social needs.

Syllabus as for History eA9.

This course is equivalent to History A10 as given in Columbia College, and forms an introduction to the advanced study of later American history.

History e11-12 — The history of England. Lectures, readings and discussions. Credit I, IV. 2 points each Session. Professor Schuyler

11 a.m.-12.40 p.m., Saturday, Room 712 Journalism. Fee \$12 each Session

A survey of English history from earliest times to the present. Deals with economic, social, intellectual and religious development, as well as with political and constitutional progress.

History e19-20 — Contemporary events. A laboratory course. Readings, reports and discussions. Credit I, IV. 2 points each Session. Dr. Slosson 3.10-4.50 p.m., Friday, Room 602 Journalism. Fee \$12 each Session

This course offers an opportunity to study contemporary events in their historical setting, as well as a practical training in the use of home and foreign newspapers, periodicals, and other publications as sources of historical information. Certain phases of the War of the Nations, China under Yuan Shih Kai, the Mexican question and political events in the leading European countries will be assigned as topics for independent investigation and classroom discussion.

History e104 — The political and social evolution of modern Turkey. Lecture-study course. Credit for those taking both hours, II. Half course Spring Session. Professor GOTTHEIL

4.10-5 p.m., lecture; 5-5.50 p.m., conference, Tuesday, Room 405 Avery. Fee \$12

This course will cover the history of the Ottoman Empire from the beginning of the nineteenth century to the present day, the reforms introduced since 1826, the constitutions of 1876 and 1908, the war in Tripoli, 1911-12, the Balkan Wars, 1912-13, and the present political conditions.

History e104a — Course e104 supplemented by assigned readings and reports. Credit II. Full course Spring Session. Fee \$24. Professor GOTTHEIL

History e125-126 — History of the Slavonic nations. Lecture-study course. For those taking both hours, Credit II. Half course each Session. Professor PRINCE

4-4.50 p.m., lectures; 4.50-5.40 p.m., conference, Wednesday, Room 701 Philosophy. Fee \$12 each Session

During the Winter Session the work will cover a careful treatment of Russian history from the earliest times to the modern period, with a discussion of the attitude of Russia during the present war and a brief survey of her literary development. During the Spring Session the history of Poland will be taken up, with special attention to her long struggles for supremacy with Russia. The religious development of the Czechs in Bohemia and the modern efforts of the Slováks to become a distinct people will be treated in outline. The year's work will close with a sketch of the rise and growth of the Serb, Croatian and Bulgarian movements and their respective relations to the present war.

History e149-150 — The development of modern France. Lecture-study course. Credit II. Half course each Session. Professor Muzzey

11 a.m.-12.40 p.m., Saturday, Room 614 Kent. Fee \$12 each Session

This course deals with the growth of the Bourbon monarchy, from the time of Richeliut, the French Revolution and the Napoleonic era, and with the attempts of the various governments during the nineteenth century to realize the political and social ideals of the Revolutionary program.

History e151 — The great historians. Credit II. Half course Winter Session. Professor Shotwell

4.30-6.10 p.m., Monday, Room 615 Kent. Fee \$12

A critical study of some of the works of great historians, including a history of the art and science of history from the earliest records to the modern era. A chance will be given to test passages of modern historians, such as Carlyle, Macaulay and some French and German historians, by the sources they used. The influence of historians upon the spirit of nationality in Europe is treated with special reference to conceptions responsible for the war.

History e156 — History of the national state in Europe. Credit II. Half course Spring Session. Professor Shotwell

4.30-6.10 p.m., Monday, Room 615 Kent. Fee \$12

A general view of the rise of the modern national state, based upon an analysis of social forces. Includes a survey of the rise of the middle class and its demand for recognition, as seen in the political revolution in England in the seventeenth century, in France in the eighteenth, and in Germany in the nineteenth.

The main interest centers upon the treatment of the French Revolution on the one hand and the Industrial Revolution on the other, and upon the effects of these great events

in the political and social evolution of Europe during the nineteenth century.

History e157 — Recent European history, 1880-1914. Lecture-study course. For those taking both hours, Credit II. Half course Winter Session.

4.30-5.20 p.m., lecture; 5.20-6.10 p.m., conference, Monday, Room 712 Journalism. Fee \$12

A survey of the rise of nationalism, of trade rivalries and of armaments, as well as a treatment of the influence of the domestic politics of each one of the major European Powers upon international relations and diplomacy.

History e177-178 - Latin America. Credit II, half course, Credit IX, 2 points each Session for those taking both hours. Professor Shepherd

7.30-8.20 p.m., lecture; 8.20-9.10 p.m., conference, Monday, Room 615 Kent. Fee \$12 each Session

Survey of the national development and international relations of the Latin-American countries, followed by an intensive study of social conditions, political and financial situation, geography and natural resources, industry, trade and transportation. Recognition of the individuality of each republic, so far as may be needful to explain its position in the world at large; but special consideration is given to the states of most importance. Primary object of the course is to supply the knowledge and to cultivate the attitude of mind which may enable Americans to understand the Latin Americans, appreciate their circumstances, work with them along the lines of material and intellectual progress, and contribute in general to the promotion of inter-American commerce and friendship.

History e177a-178a — Course e177-178 supplemented by assigned readings and reports. Credit II. Full course each Session. Fee \$24 each Session

### HYGIENE

Hygiene e1-2 — Hygiene and sanitation. Credit I, IV. 3 points each Session. Professor MEYLAN

5-6.15 p.m., Monday and Thursday, Room 301 Engineering. Fee \$18 each Session

Winter Session - Health and disease in terms of general biology. Preventive medicine; disease germ carriers, flies, mosquitoes; vaccination, antitoxins, etc. Sanitation and public hygiene; water supplies, food inspection, garbage and sewage removal, etc. Industrial diseases and accidents. Constructive hygiene. National, state and municipal health agencies.

Spring Session - Personal hygiene; diet and beverages; excretion, lungs and ventilation; skin, clothing and bathing; physical education; athletics and games; hygiene of the blood and circulation; hygiene of the nervous system; rest; sleep; recreation; mental hygiene; sex hygiene; hygiene of the eyes, ears, nose, throat, teeth and hair; efficiency and vital resistance; first aid to the injured.

# INTERNATIONAL LAW

See also Politics, p. 78

International law e103-104 — Principles and practice of international law. Lecture-study course. Credit II, half course (e103-104) or full course (e103a-104a); Credit IV, 2 points each Session. Professor Stowell

7.30-9.10 p.m., Tuesday, Room 614 Kent. Fee \$12 (e103-104) or \$24 (e103a-104a) each Session

This course begins with a brief introductory examination of the basic principles of international law relating to war, peace, and neutrality. Application of principles to selected cases. Critical examination of current questions arising in the international relations of the United States and other countries. Especial emphasis is laid upon the practice of arbitration and the possibilities of its wider extension.

Text-book: Stowell and Munro's International Cases.

No previous knowledge of international law is required, but the prior study of an elementary text-book, such as Lawrence's *Principles of International Law*, is strongly recommended.

International law e119-120 — Modern European and American diplomacy. Credit II, half course (e119-120) or full course (e119a-120a); Credit IV, 2 points each Session. Mr. Munro

7.40-9.30 p.m., Wednesday, Room 603 Journalism. Fee \$12 (e119-120) or \$24 (119a-120a) each Session

Fundamentals of world politics. The European concert and the balance of power. Alliances and ententes. European crises since 1870. International congresses and conferences. The collapse of European diplomacy, 1914. The state papers critically examined.

American diplomacy during the Civil War, especially with respect to problems of neutrality. Foreign relations of the United States, 1865-1898. Anglo-American arbitrations. The diplomacy of the Spanish-American War. The United States as a world power. Canal diplomacy. The United States and the Great War.

International law e121 — History of diplomacy. Credit II. Full course Winter Session. Mr. Munro

11-11.50 a.m., Monday and Tuesday, Room 507 Journalism. Fee \$24

Evolution of relations between independent states and manner in which those relations are conducted. History of diplomatic system of Europe from its beginnings to present time, and exposition of preceding religious, dynastic, territorial and commercial struggles. Development of European concert prior to Peace of Westphalia. Examination of most important of general European treaties, beginning with those concluded at Congress of Westphalia, and ending with those of recent date.

International law e122 — History of American diplomacy. Credit II. Full course Spring Session. Mr. Munro

11-11.50 a.m., Monday and Tuesday, Room 507 Journalism. Fee \$24

Special attention given to history and methods of diplomacy of United States. (1) Diplomacy of Revolution; (2) period from Treaty of Peace of 1783 to termination of War of 1812; (3) from the termination of that war to Civil War; (4) from outbreak of that war to present time.

#### International Relations

International relations e101-102 — History and growth of international relations. Lecture-study course. Credit II. Half course each Session. Mr. Munro!

5-6.40 p.m., Monday, Room 407 Avery. Fee \$12 each Session

Introductory — historical: (A brief consideration of the history of international relations and earlier forms of internationalism); the Roman Empire and the Pax Romana; the Christian Church; the Holy Roman Empire; feudalism; the Crusades; Roman law; the Renaissance; formation of national states.

Relations of independent states: Distinction between international policy and international law; formation of national policies; imperialistic policies; international law;

arbitration, mediation and good offices.

Study of important national policies: Status quo; balance of power; concert of Europe; open door; Monroe Doctrine; Drago Doctrine.

Problems of international peace: Nationality; race; religious propaganda; protection

and free trade; armament; repudiation of debt.

World organization: Hague conferences; formation of group empires; international unions; private international associations; world-wide business organization; the world's financial organization; new inventions; science and education; international law and diplomacy (see above).

International law and diplomacy: The principles of international law as derived from the practice of independent states are studied from the point of view of fundamental law of the world which constitutes the basis of our international society. Diplomacy is studied as a means or instrument to secure the recognition of international law and the protection of national interests and policies.

### LATIN

Latin eA5 — Collegiate Latin. Horace, Odes; Catullus. Credit I, IV. 3 points Winter Session. Professor Guernsey

4.30-5.45 p.m., Monday and Thursday, Room 402 Hamilton. Fee \$18 The same as Latin A2 in Columbia College.

Latin eA6 — Collegiate Latin. Livy (selections); Terence, one play. Credit I, IV. 3 points Spring Session. Professor Guernsey

4.30-5.45 p.m., Monday and Thursday, Room 402 Hamilton. Fee \$18 The same as Latin A1 in Columbia College.

Latin eX1-X2 — Elementary Latin and Caesar. Credit I, for the B.S. degree; IV. 3 points each Session. Miss Wyr

8-9.30 p.m., Tuesday and Friday, Room 406 Hamilton. Fee \$18 each Session

The aim of this course is to enable the student to read Latin of average difficulty rapidly and accurately. With this end in view the work is conducted in strict accordance with the principles of the Direct Method. There is, therefore, constant drill, both oral and written in forms, syntax and vocabulary but no effort is made to teach students the art of translation. The time ordinarily spent on English translation is devoted to reading as much Latin as possible. As a consequence mature students, on the completion of this course, usually find their reading knowledge of Latin sufficient for the needs of ordinary professional or literary work.

No previous knowledge of Latin is required for this course.

Students are strongly urged not to elect an elementary course in another language in

conjunction with Latin eX1-X2.

Text-books: Paine and Mainwaring, Primus Annus; Decem Fabulae (Clarendon Press); Appleton and Jones, Pons Tironum (Bell); Appleton, Puer Romanus; Clarendon Press, a text edition of Caesar's Gallic War.

Latin eX3 — Caesar, Nepos and prose composition. Credit I, for the B.S. degree if offered in conjunction with Latin eX1 or eX8; IV. 3 points Winter Session. Miss EGBERT

4.30-6 p.m., Monday and Thursday, Room 301 Mines. Fee \$18

This course, given in the Winter Session, is planned for students who have studied Latin one year and for those who wish to review the work of the second year of high school.

Latin eX8 — Elementary course. Credit I, for the B.S. degree if offered in conjunction with Latin eX2 or eX3; IV. 3 points Spring Session. Mr. Debatin

4.15-5.30 p.m., Monday and Thursday, Room 301 Mines. Fee \$18
A course for beginners.

Latin eY1 — Ovid and Vergil. Credit IV. 3 points Winter Session. Miss WYE

3-4.30 p.m., Tuesday and Friday, Room 610 Journalism. Fee \$18

Latin eY1 and Section 1 of Latin eY8 are Direct Method reading courses in Latin poetry. The student's knowledge of what he is reading will be tested by questions in Latin, oral and written and by frequent Latin summaries. There will be occasional exercises in English translation, but the aim of the course is to teach Latin rather than English and, therefore, such exercises will be infrequent.

Prerequisite: Latin eY3 and eY5 or the equivalent.

Text-books: Strangeways' P. Ovidi Nasonis Elegiaca (Clarendon Press); a text edition of Vergil.

Latin eY3 — Cicero and Sallust. Credit IV, if offered in conjunction with Latin eY5 or eY6. 3 points Winter Session. Miss Wyz

7-8.15 p.m., Monday and Thursday, Room 713 Journalism. Fee \$18

A Direct Method reading course in Latin prose.

The orations for the Manilian Law and for Archias will be read together with the account of the Catilinarian Conspiracy as it appears in Sallust's Catiline and in the Catilinarian orations.

Prerequisite: Latin eX1-X2 or the equivalent.

Text-books: Text editions of Sallust's Catiline and the six orations of Cicero specified; Strachan-Davidson, Cicero (Putnam).

Latin eY4 — Cicero and Sallust. Credit IV, if offered in conjunction with Latin eY5 or eY6. 3 points Spring Session. Miss EGBERT

4.30-6 p.m., Monday and Thursday, Room 707 Journalism. Fee \$18

Latin eY5 — Latin prose composition. Credit IV, if offered in conjunction with Latin eY3 or eY4. 2 points Winter Session. Fee \$12. Miss WyE

Section 1 — 2.10-3 p.m., Monday and Thursday, Room 611 Journalism Section 2 — 8.30-9.20 p.m., Monday and Thursday, Room 610 Journalism

This course is designed to give a thorough review of the material which is ordinarily included in the high school course in prose composition.

Prerequisite: Latin eX1-X2.

Text-books: Baker-Inglis, Latin Composition (Macmillan); Gildersleeve, Latin Grammar (Heath).

Latin eY6 — Latin prose composition. Credit IV, if offered in conjunction with Latin eY3 or eY4. Course Latin eY5 repeated. 2 points Spring Session. Miss Wye

2.10-3 p.m., Monday and Thursday, Room 611 Journalism. Fee \$12

Latin eY8 — Ovid and Vergil. Course Latin eY1 repeated. Credit IV. 3 points Spring Session. Fee \$18

Section 1-3-4.30 p.m., Tuesday and Friday, Room 610 Journalism. Miss Wye

Section 2 — 7-8.30 p.m., Monday and Thursday, Room 303 Hamilton. Dr. Reiley

Section 1 is a Direct Method reading course.

Latin e91-92 — Reading course in Latin poetry. Credit I, IV. 2 points each Session. Professor Guernsey

9-10.40 a.m., Saturday, Room 608 Philosophy. Fee \$12 each Session

A general reading course in the Latin poets. Though primarily literary in purpose, the course will take due note of the needs of teachers, and, therefore, the authors and selections read will be determined largely after the formation of the class and with special reference to the needs of its individual members.

Prerequisite: Latin e5-6 or an equivalent.

## LIBRARY ECONOMY

The courses in Library economy when supplemented by certain cultural classes form a full year's work. On the completion of the work a formal statement is given to students who have satisfied the entrance requirements. Full information is contained in a special bulletin which will be mailed upon request.

Library economy e1-2 — Bibliography. 2 points each Session. Miss KELLER

5.10-6 p.m., Friday, Room 211 Library. Fee \$12 each Session

A study by means of lectures and problems of the standard works of bibliography and reference. General and national bibliography, American, English, French and German. Reference works, i.e., encyclopedias and dictionaries, general and special. indexes to periodicals, and government documents, statistical annuals, quotations, handbooks of information, etc. The history of the book, bibliographies of special subjects, the best books, manuals, etc., will be given by professors of the University.

Text-book: A. B. Kroeger, Guide to the Study and Use of Reference Books.

Library economy e3-4 — Cataloguing and classification. 2 points each Session. Miss Keller

7.15-9.45 p.m., Tuesday and Thursday, Room 211 Library. Fee \$12 each Session

Lectures and practice work based on the A. L. A. catalogue rules; A. L. A. list of subject headings for use in dictionary catalogues, fourth edition; Rules for a Dictionary Catalogue, fourth edition, by C. A. Cutter and the Decimal Classification by Melvil Dewey. Winter Session, cataloguing; Spring Session, cataloguing and classification.

Library economy e5 — Library administration. 2 points Winter Session. Mr. HICKS

5.10-6 p.m., Wednesday, Room 709 Journalism. Fee \$12

The course of the book from the publisher through the departments of the library to the reader will be followed in detail of process and record as follows: Book selection and book buying, American publishers, the book order department, its staff, checking of invoices and order files, accessioning; the catalogue department of the large and the small library; book binding and rebinding; charging systems; library statistics; the library budget; the librarian's report; library advertising.

Practice work will be arranged. Required reading will be mainly in the files of the

Library Journal and Public Libraries.

Library economy e6 — Library administration. Seminar. 2 points Spring Miss Keller

5.10-6 p.m., Wednesday, Room 211 Library. Fee \$12

Individual topics will be presented by the students.

Library economy e7 — Children's work. 1 point Winter Session. Mrs. GOULD

11-11.50 a.m., Saturday, Room 505 Journalism. Fee \$6

This course will take up the planning and equipment of the children's room, bulletin work, the selection and buying of books, story telling, reading circles, simple cataloguing and classification as adapted to children's work, work with schools, playgrounds, and the "home library."

Library economy e8 — Children's work. Course e7 repeated in the Spring Session. 1 point Spring Session. Mrs. Gould

11-11.50 a.m., Saturday, Room 505 Journalism. Fee \$6

Library economy e21-22 — Indexing, filing and cataloguing as applied in business. 2 points each Session. Miss Wallace

7.45-9.45 p.m., Wednesday, Room 503 Journalism. Fee \$12 each Session

Lectures and practice. A course in indexing and filing correspondence, clippings, pamphlets, etc. The application of library methods, card and classification systems, especially the Dewey Decimal system, to records in business offices and special libraries, commercial houses, banks and corporations.

### MATHEMATICS

Mathematics eX1 — Algebra, elementary and intermediate course (complete). 4 points Winter Session. Mr. Tanzola

6.10-7 p.m., Monday, Tuesday, Thursday and Friday, Room 603 Journalism. Fee \$24

This course reviews elementary algebra to and beyond quadratics. It includes the fundamental operations, factoring, fractions, ratio and proportion, quadratics, binomial theorem (simple forms), progressions and graphical methods. It is not open to beginners.

Mathematics eX2 — Algebra, elementary and intermediate course (complete). Course eX1 repeated in the Spring Session. 4 points Spring Session. Mr. Douglas

7.25-8.15 p.m., Monday, Tuesday, Thursday and Friday, Room 202 Hamilton. Fee \$24

Mathematics eX3 — Algebra, elementary course. 3 points Winter Session.

Mr. Woodward

7-8.15 p.m., Monday and Thursday, Room 203 Hamilton. Fee \$18

This course, planned for beginners, covers elementary algebra to quadratics.

Mathematics ex4 — Algebra, elementary course. Course eX3 repeated in the Spring Session. 3 points Spring Session. Mr. Woodward

8.20-9.35 p.m., Monday and Thursday, Room 202 Hamilton. Fee \$18

Mathematics eX5 — Algebra, intermediate course. 3 points Winter Session. Fee \$18

Section 1 — 8.20-9.35 p.m., Monday and Thursday, Room 202 Hamilton. Mr. Woodward

Section 2 — 8.20-9.35 p.m., Tuesday and Friday, Room 202 Hamilton. Mr. Douglas

This course is planned especially for students who take Mathematics esX in Summer Session and for those who wish to complete their requirements in intermediate algebra. The work will begin with a brief review of the more important topics of elementary algebra and proceed to the study of quadratic equations, the binomial theorem and the progression.

Mathematics eX6 — Algebra, intermediate course. Course eX5 given in the Spring Session. 3 points Spring Session. Mr. Woodward

7-8.15 p.m., Monday and Thursday, Room 203 Hamilton. Fee \$18

Mathematics eY1 — Plane geometry (complete). 4 points Winter Session, Mr. Harton

 $7.25{-}8.15$  p.m., Monday, Tuesday, Thursday and Friday, Room 202 Hamilton. Fee \$24

The five books of plane geometry, including rectlinear figures, the circle, proportion areas of polygons, regular polygons and circles.

Text-book: Wentworth's Geometry (Wentworth and Smith's revision).

Mathematics eY2 — Plane geometry. Course eY1 repeated in the Spring Session. 4 points Spring Session. Mr. Harton

6.10-7 p.m., Monday, Tuesday, Thursday and Friday, Room 203 Hamilton. Fee \$24

Mathematics eA1 — Trigonometry. Credit I, IV. 2 points Winter Session. Fee \$12

Section 1-4.10-5 p.m., Tuesday and Friday, Room 301 Engineering. Mr. Douglas

Section 2-6.10-7 p.m., Tuesday and Friday, Room 203 Hamilton. Mr. Harton

Section 3 — 8.20-9.10 p.m., Monday and Thursday, Room 213 Hamilton. Mr. Curt

The subject-matter of this course includes trigonometric functions, circular measure, relations between the functions, functions of several angles, inverse functions, trigonometric equations, logarithms, solution of triangles.

Mathematics eX5 or its equivalent is presupposed. Text-book: Palmer and Leigh's Plane Trigonometry.

Mathematics eA2 — Solid geometry. Course eA3 repeated in the Spring Session. Credit I, IV. 3 points Spring Session. Mr. Curt

7-8.15 p.m., Monday and Thursday, Room 214 Hamilton. Fee \$18

Mathematics eA3 — Solid geometry. Credit I, IV. 3 points Winter Session. Mr. RITT

4.10-5.25 p.m., Monday and Thursday, Room 306 Engineering. Fee \$18

In addition to the usual theorems on lines, planes and solids, the geometry of the sphere, and the development of space intuition, this course lays special stress upon the purely logical side of the subject and the nature of mathematical proof.

Plane geometry is presupposed.

The above course is equivalent to Mathematics A2 or A3 in the Announcement of Columbia College.

Text-book: Hart and Well's Solid Geometry.

Mathematics eA4 — Trigonometry. Course eA1 repeated in the Spring Session. Credit I, IV. 2 points Spring Session. Fee \$12

Section 1-8.20-9.10 p.m., Monday and Thursday, Room 214 Hamilton. Mr. Ritt

Section 2-4.10-5 p.m., Tuesday and Friday, Room 301 Engineering. Mr. Tanzola

Mathematics e1 — Algebra. Credit I, IV. 3 points Winter Session. Mr. Bird

7-8.15 p.m., Monday and Thursday, Room 214 Hamilton. Fee \$18

This course is designed for students who desire to continue with such more advanced topics as permutations and combinations, determinants with applications to the solutions of linear equations, complex numbers, theory of equations, with reference to the solution of numerical equations of higher degree, undetermined coefficients involving the use of finite series, and partial fractions.

Mathematics eA1 or its equivalent is presupposed.

Equivalent to Mathematics 1 in the Announcement of Columbia College.

Text-book: Hawkes's Higher Algebra.

Mathematics e2 — Algebra. Course e1 repeated in the Spring Session. Credit I, IV. 3 points Spring Session. Mr. Bird

8.20-9.35 p.m., Monday and Thursday, Room 213 Hamilton. Fee \$18

Mathematics e3 — Analytical geometry. Credit I, IV. 3 points Winter Session. Mr. Bird

8.20-9.35 p.m., Monday and Thursday, Room 214 Hamilton. Fee \$18

Introduction to algebraic geometry, dealing with such topics as coördinate systems, transformations, loci and their equations, the straight line, circle, parabola, ellipse, hyperbola, the geometric interpretation of the general equation of second degree and the elements of three-dimensional geometry.

Mathematics eA1 and e1 or their equivalents are presupposed.

Equivalent to Mathematics 3 or 4 in the Announcement of Columbia College.

Text-book: Smith and Gale's New Analytic Geometry.

Mathematics e4 — Analytical geometry. Course e3 repeated in the Spring Session. Credit I, IV. 3 points Spring Session. Mr. Harton

7-8.15 p.m., Monday and Thursday, Room 502 Hamilton. Fee \$18

Mathematics e75-76 — Calculus. Credit I, IV. 4 points each Session. Mr. Curt

6.35–8.15 p.m., Tuesday and Friday, Room 213 Hamilton. Fee \$24 each Session

The notions and operations of function, differentiation, and integration are presented with applications to geometry, physics and mechanics.

Mathematics e3 or its equivalent is presupposed.

Equivalent to Mathematics 75-76 in the Announcement of Columbia College.

Text-book: Granville's Differential and Integral Calculus.

Mathematics e78 — Calculus. Course e75 repeated in the Spring Session. Credit I, IV. 4 points Spring Session. Mr. BIRD

8.20-10 p.m., Monday and Thursday, Room 203 Hamilton. Fee \$24

## Summer Session Evening Courses

July 10-August 18

Mathematics esX — Algebra, elementary course. (For beginners.) 2 points Summer Session. Mr. McMackin

7 p.m., Room 712 Journalism. Fee \$12

This course covers elementary algebra to quadratics. It includes the fundamental operations, factoring and fractions. Students completing this course may continue by electing Mathematics eX5 in Extension Teaching in September.

Text-book: Hawkes' First Course in Algebra.

Mathematics esY — Plane geometry (complete). (For beginners.) 2 points Summer Session. Mr. McMackin

8.10 p.m., Room 712 Journalism. Fee \$12

The five books of plane geometry, including rectilinear figures, the circle, proportion, areas of polygons, regular polygons and circles.

Text-book: Wentworth's Geometry (Wentworth and Smith's revision).

Mathematics esA1 — Logarithms and trigonometry. Credit I. 2 points Summer Session. Mr. Tanzola

8.10 p.m., Room 707 Journalism. Fee \$12

An introductory account of the theory of logarithms and some preliminary practice in the use of logarithmic tables will be followed by a development of the theory of the trigonometric functions and by applications of the theory to the solution of plane triangles and trigonometric equations. Recitations and lectures.

#### MUSIC

Music eX1-X2 — University chorus. Professor Walter Henry Hall 8.15-9.45 p.m., Tuesday, Room 206 Journalism. Fee for University students expecting credit \$6, otherwise no charge; for all others \$2 for the year. Credit I. 1 point with special arrangement if taken in conjunction with another course in music.

For the practice and performance of various forms of choral art. It is expected that concerts will be given during the year, when the University Chorus will join with that of Brooklyn (Brooklyn Oratorio Society), forming a large festival chorus. Students will be allowed to become members of this chorus only after application to Professor Hall, and after a voice trial.

Music e5 — Elementary ear training and dictation. Credit IV. 2 points Winter Session. Mr. Manning

4.10-5.50 p.m., Tuesday, Room 701 Journalism. Fee \$12

This course aims to develop the rhythmic sense, the recognition of tones, intervals and chords and the ability to hear mentally the melodies and rhythms that one sees on the printed page and to write, from dictation, music in one and two parts.

An elementary knowledge of notation is required.

Music e5a — Advanced ear training and dictation. Credit IV. 2 points Winter Session. Mr. Manning

4.10-5.50 p.m., Friday, Room 701 Journalism. Fee \$12

Identical with Music e6, but given in the Winter Session.

Music e6 — Elementary ear training and dictation. Credit IV. 2 points Spring Session. Mr. Manning

4.10-5.50 p.m., Tuesday, Room 701 Journalism. Fee \$12 Identical with Music e5 but given in the Spring Session.

Music e6a — Advanced ear training and dictation. Credit IV. 2 points Spring Session. Mr. Manning

4.10-5.50 p.m., Friday, Room 701 Journalism. Fee \$12

This course continues Music e5, developing oral recognition of chords as used in diatonic and chromatic harmony, modulations and the various non-harmonic devices; with written dictation in two to four parts.

A theoretic knowledge of harmony is required.

Music e7-8 — Elementary harmony. Credit I, IV. 2 points each Session. Mr. Ward

4.10-5.50 p.m., Monday, Room 701 Journalism. Fee \$12 each Session

This course treats of the fundamental principles of melody writing, chord-construction and chord interrelation through the medium of four-part writing. It will include the study of triads, seventh and ninth chords and their inversions, suspensions and other non-harmonic devices and simple modulation and will involve the harmonizing of given basses and melodies. A knowledge of notation and ability to play simple exercises on the piano are required for admission.

Music e7a — Elementary harmony. Credit I, IV. 2 points Winter Session. Mr. Ward

1.10-2.50 p.m., Saturday, Room 701 Journalism. Fee \$12

This course is identical with Music e8 and is planned for students who have had some instruction in elementary harmony.

Music e8a — Elementary harmony. Credit I, IV. 2 points Spring Session. Mr. Ward

1.10-2.50 p.m., Saturday, Room 701 Journalism. Fee \$12

This course, beginning in February, is the same as Music e7 and is planned for students who desire to study the fundamental principles of harmony.

Music e9-10 — Advanced harmony and elementary form. Credit I, IV. 2 points each Session. Mr. WARD

4.10-5.50 p.m., Saturday, Room 701 Journalism. Fee \$12 each Session

A continuation of Course e7-8, taking up the various methods of modulation, altered chords, organ point, etc. Analysis of works by the great composers, and the study of the smaller forms, leading to original composition, constitute an important part of the work of this course.

Applicants should consult the instructor before registering.

Music e11-12 — Applied harmony. Credit I, IV. 2 points each Session. Mr. Kraft

9-10.40 a.m., Saturday, Room 701 Journalism. Fee \$12 each Session

The aim of this course is to aid the student in composing music in the small forms, both vocal and instrumental.

Prerequisite: Practice in melodic invention and knowledge of chord combinations.

Music e13-14 — Violin art. Credit IV. Credit allowed by the Department of Music. 2 points each Session. Mr. WYLIE

8-9.40 p.m., Friday, Room 713 Journalism. Fee \$12 each Session

This course is designed to fill the needs of the teacher, the advanced professional student and the progressive amateur in violin art. It is so arranged that the person aiming to be an executant or teacher, or both, may learn something of practical utility in both technic and interpretation from every program.

Music e25-26 — Sight singing. Credit IV. 2 points each Session. Mr. Kraft

9-10.40 a. m., Saturday, Room 703 Journalism. Fee \$12 each Session

This course is especially arranged for grade teachers. The work is planned to give material and the method of teaching it from the first grade through the eighth. Ear training and dictation form an important factor of the work.

Music e53-54 — Introductory harmony. Credit I, IV. 2 points each Session. Mr. Kraft

11 a.m.-12.40 p.m., Saturday, Room 701 Journalism. Fee \$12 each Session

The aim of this course is, first, to lead the student to observe the structure of hymntunes, chorals and simple compositions, with reference to the melodic movement of parts and to the character and distribution of chords. Second, to give practice in melodic invention and chord combinations expressed in simple constructive work. This work forms the basis for the study of theoretic harmony.

### PENMANSHIP

Penmanship e1 — Practical course. 2 points Winter Session. Mr. Healey

4.30-5.45 p.m., Tuesday and Friday, Room 516 Schermerhorn. Fee \$12

Thorough training will be given in the art of writing by the use of the free arm or muscular movement system. The development will be treated in a scientific manner. Methods of teaching the subject will constitute an important part of the course.

#### PHILOSOPHY

Philosophy eA1 — Principles of science: methods, deductive and inductive logic. Lectures, recitations, and individual consultations with the instructor. Credit I, IV. 3 points Winter Session. Dr. OWEN

8.20-9.35 p.m., Tuesday and Friday, Room 503 Hamilton. Fee \$18

This course aims at drilling students in the forms of accurate thinking and at developing skill in detecting errors in reasoning. The principles of inductive and deductive logic will be taught and applied, both critically and constructively, to a large number of arguments.

Text-book: Dewey's How We Think and Jevons' Studies in Deductive Logic. This course is the same as Philosophy A1 in Columbia College.

Philosophy eA2 — Principles of science: concepts and problems of philosophy. Lectures, recitations, and individual consultations with the instructor. Credit I, IV. 3 points Spring Session. Mr. Coss

8.20-9.35 p.m., Tuesday and Friday, Room 503 Hamilton. Fee \$18

In this course the scientific knowledge of the present day will be used as a basis of interpreting and criticizing fundamental philosophic conceptions of human nature and man's place in the universe.

This course is the same as Philosophy A2 in Columbia College.

Philosophy eA4 — Principles of science: methods, deductive and inductive logic. Credit I, IV. 3 points Spring Session. Dr. Owen

5-6.15 p.m., Tuesday and Friday, Room 512 Journalism. Fee \$18

Course eA1 repeated in the Spring Session for students entering at that time. For description see above.

Philosophy eA5 — Principles of science: concepts and problems of philosophy. Credit I, IV. 3 points Winter Session. Mr. Coss

5-6.15 p.m., Tuesday and Friday, Room 512 Journalism. Fee \$18

Course eA2 given in the Winter Session. For description see above.

Philosophy e21 — Ethics, theoretical and practical. Credit I, IV. 2 points Winter Session. Dr. Cooley

4.10-5.50 p.m., Wednesday, Room 712 Journalism. Fee \$12

An inquiry into the true principles of conduct, based upon McDougal's Social Psychology and Dewey and Tuft's Ethics with applications to present-day issues.

Philosophy e22 — Ethical ideals, past and present. Credit I, IV. 2 points Spring Session. Dr. Cooley

4.10-5.50 p.m., Wednesday, Room 712 Journalism. Fee \$12

An historical and critical survey of the ends of life which men have actually put before them as revealed in the literatures, religions, and civilizations of the world.

Philosophy e135-136 — Radical, conservative, and reactionary tendencies in present-day morals. Credit II. Full course (e135-136) or half course (e135a-136a) each Session. Professor Montague

7.40-9.30 p.m., Friday, Room 302 Philosophy. Fee \$24 (full course) or \$12 (half-course) each Session

The course is designed as an introduction to contemporary problems of social or institutional ethics. These problems arise in connection with the conflicting theories as to the true nature and value of the established institutions of human society. The work of the course will, therefore, consist in a general survey of these six fundamental institutions or forms of social relationship, and of the problems and controversies related to each of them. The order of study will be as follows:

- The political problem of the powers of the state (anarchism vs. governmentalism).
   The international problem of the federation of the world (pacificism vs. militarism).
- 3. The industrial problem of the status of property (socialism vs. laissez-faire).
- 4. The educational problem of the purpose of the school (vocationalism vs. general culture).
- 5. The woman problem of the organization of the family (feminism vs. the claim of the home).
  - 6. The religious problem of the ideal of the church (anti-clericalism vs. christianity).

Philosophy e161-162 — History of philosophy. Credit I, IV, 2 points; Credit II, half course each Session. Dr. Cooley

4.10-5.50 p.m., Friday, Room 610 Philosophy. Fee \$12 each Session

In the Winter Session the genesis of the fundamental problems of thought, ethics and religion and the treatment they received from ancient and medieval thinkers will be traced. The Spring Session will be devoted to the consideration of these problems from the point of view of the modern world.

Text-books: Weber's History of Philosophy; Windelband's Ancient Philosophy.

Philosophy e190-191 — Philosophy of religion. Lectures, readings and reports. Credit II. Half course each Session. Mr. Boggs

4.10-5.50 p.m., Monday, Room 302 Engineering. Fec \$12 each Session

The point of view to be developed is that religion has a definite function to perform, and the philosophy of religion, therefore, a definite place in philosophic discipline. Instead, however, of laying down this definite place at the outset, dogmatically, and then considering the phenomena which fall within the field thus defined, the procedure will be to examine the nature of reality as a whole, as it appears in experience, and the kind of questions which it raises, in an attempt to discover if any of these questions are of a kind to look to religion for an answer. An hypothesis will then be laid down, and through a study of the religious life in its individual and in its social phenomena an attempt will be made to test this hypothesis.

### PHOTOGRAPHY

Photography e1 — General principles of photography. Lectures. 2 points Winter Session. Dr. Weinrich

7.30-9.20 p.m., Friday, Room 304 Fayerweather. Fee \$12

This course is designed to give the student a sound fundamental knowledge of the theory and practice of photography. It comprises: introductory lectures on light; the pin-hole camera; a general discussion of lenses; the errors, corrections and properties of photographic lenses; the advantages and disadvantages of different types of lenses and shutters; the testing of lenses and shutters; the adjustments and accessories of different types of cameras and their use; the exposure and exposuremeters; the photographic emulsion in general; the theories of the latent image and an elementary treatment of orthochromatism in conjunction with various processes of color photography.

Whenever practicable, the lectures will be illustrated by lantern slides and experiments.

Prerequisites: Elementary physics, chemistry, algebra and trigonometry.

Photography e2 — Photographic processes, photo-physics and sensitometry. Lectures. Credit IV. 2 points Spring Session. Dr. Weinrich 7.30-9.20 p.m., Friday, Room 304 Fayerweather. Fee \$12

A continuation of Photography e1, being a more detailed and technical treatment of photographic emulsions and their properties. It comprises: the normal and abnormal development of normal and abnormal exposures and the general treatment of dry-plates and films; a discussion of the more important photographic printing processes; the laws of photographic action; the effect of exposure and development on density and opacity; plate-grain and speed; orthochromatism by bathing, and the use of dyes for regional sensitiveness; spectrum-photography and photometry and color filters.

Whenever practicable, the lectures will be illustrated by lantern slides and experiments. Prerequisite: Course eP1 or its equivalent. Students should consult the instructor

about the prerequisite.

#### PHOTOPLAY WRITING

Photoplay writing e1 — Elementary course. 3 points Winter Session. Fee \$18. Dr. Freeburg

Section 1 — 3.10-4.25 p.m., Thursday, Room 201 East Section 2 — 8.30-9.45 p.m., Wednesday, Room 201 East

This course is concerned with the methods of preparing dramatic plots, old and new, for the motion pictures. The photoplay is studied as an independent art of dramatic expression, in some ways inferior, in other ways superior, to the stage play. Special attention is paid to the art of arousing and maintaining interest, the proper arrangement of incidents and situations, the various methods of delineating character, the effective use of mechanical devices, and the pantomimic and pictorial qualities of a good photoplay.

Films will be exhibited and analyzed before the class, and visits will be made to the studios of first-class motion picture companies.

Each student must write finished, technically correct scenarios of at least one adaptation and at least one original photoplay during each Session.

This course will be repeated in the Spring Session.

Photoplay writing e3-4 — Advanced course. 4 points each Session. Dr. FREEBURG

3.10-4.25 p.m., Monday, Room 611 Journalism. Fee \$24 each Session

This course is open regularly only to those who have completed successfully the work in the elementary course.

It is designed to give a limited number of scenario writers an opportunity for development of individual genius, and for a general study of the finer problems and possibilities of the photoplay. There will be discussion of such topics as the psychology of dramatic characters, symbolism, allegory, the spectator's imagination, and the dramatic use of settings.

Each student is expected to write one complete feature photoplay each Session or several shorter works of equivalent total length.

### PHYSICAL EDUCATION

(For men students only)

Physical education eA1-A2 — Gymnastics and games. Credit I, IV. 2 points each Session. Professor Elliott

8.30-9.20 p.m., Monday, Thursday and Saturday. Fee \$12 each Session

This course comprises free exercises with and without hand apparatus and chest-weight exercises; simple work on gymnastic apparatus, such as horizontal ladder, horizontal bar, ropes, buck, horse, etc., gymnasium games.

Students taking this course for credit in Columbia College will be required to attend one hour a week (Saturday, 7.30-8.20 p.m. or Tuesday and Thursday, 5-6.15 p.m.) a course in hygiene and sanitation during the Winter Session and to pass an examination in swimming during the Spring Session.

Physical education eW1-W2 — Wrestling. 2 points each Session. Fee \$12 each Session. Mr. Peterson

Section 1 - 7.30-8.30 p.m., Thursday

Section 2 — 8.30-9.30 p.m., Thursday

Physical education eY1-Y2 — Swimming, 2 points each Session. Fee \$12 each Session. Mr. Kennedy

Section 1 — Monday, 8.30-9 or 9-9.30 p.m.

Section 2 — Thursday, 8.30-9 or 9-9.30 p.m.

Section 3 — Saturday, 8.30-9 or 9-9.30 p.m.

Students may receive instruction on either Monday, Thursday, or Saturday and will have the privilege of using the swimming pool on the remaining evenings.

Physical education eZ1-Z2 — Boxing. 2 points each Session. Fee \$12 each Session. Mr. Weeman

Section 1 — Thursday, 7.30-8.30 p.m.

Section 2 — Thursday, 8.30-9.30 p.m.

Students have the privilege of using the gymnasium and swimming pool Monday, Thursday and Saturday evenings from 7 to 10 o'clock.

## PHYSICS

Physics eA1-A2 — Elementary course in general physics. 3 hours' lectures and recitations, with 2 hours' laboratory work a week. Credit I, IV. 4 points each Session. Professor Brown and Mr. Goucher

7.30-9 p.m., Monday and Thursday, Room 304 Fayerweather, lectures. The laboratory work (Room 401 Fayerweather) is done in sections of 12 students each, the number of sections and the hours of meeting depending upon the number registering for the course. In the Winter Session of 1915-16 the sections met as follows:

Section 1 — Monday, 5.30-7.30 p.m.

Section 2 — Monday, 9-11 p.m.

Section 3 — Tuesday, 4-6 p.m.

Section 4 — Wednesday, 4-6 p.m.

Section 5 — Thursday, 5.30-7.30 p.m.

Section 6 — Thursday, 9-11 p.m.

In assigning students to laboratory sections, preference will be given to those who register first. Fee \$24 each Session

An introductory course in physics for students who wish to become acquainted with the results, methods and spirit of the science, whether they intend to pursue its study further or wish an elementary knowledge of physics only as a matter of general interest. A knowledge of elementary algebra and geometry is required. Trigonometry is not required.

### POLITICS

Politics e1-2 — American government. Credit I, IV. 3 points each Session. Fee \$18 each Session

Section 1-4.30-5.45 p.m., Monday and Thursday, Room 713 Journalism. Mr. Macmahon

Section 2-7-8.15 p.m., Monday and Thursday, Room 712 Journalism. Professor Sair

A general survey of the whole field, based largely on Beard's American Government and Politics (edition of 1914), and designed both for those who wish to teach the subject in the schools and for those who wish to gain an insight into the responsibilities of citizenship. Attention will be confined to national government in the Winter Session; to state, municipal, and local government in the Spring Session.

Identical with Politics 1-2 in Columbia College.

Politics e105 — Government of the City of New York. Credit II. Half course (e105) or full course (e105a) Winter Session. Professor McBain

4.30-6.10 p.m., Tuesday, Room 203 Hamilton. Fee \$12 (half course) or \$24 (full course)

An historical survey of the government of the city and a detailed study of the present organization, functions, and methods of the several branches of the government.

Politics e106 — American city government. Credit II. Half course (e106) or full course (e106a) Spring Session. Professor McBain

4.30-6.10 p.m., Tuesday, Room 203 Hamilton. Fee \$12 (half course) or \$24 (full course)

A study of the relation between the city and the state and of the organization, operation and problems of city government in the United States.

Politics e107-108 — Comparative government and politics. Credit II. Half course (e107-108) or full course (e107a-108a) each Session. Professor SAIT

11 a.m.-12.40 p.m., Saturday, Room 610 Journalism. Fee \$12 (half course) or \$24 (full course) each Session

An analysis of the English, French and German governments with emphasis upon their actual operation and the functioning of political parties. In comparing European and American practice, students will be supposed to have some acquaintance with the working of American institutions.

## PRACTICAL OPTICS

The University offers a two years' course in Practical Optics for students of optometry. A special circular describing these classes will be sent on application to the Secretary of the University.

### **PSYCHOLOGY**

Psychology e1-2 — Elements of psychology. Lectures, demonstrations, discussions and recitations. Credit I, IV. 3 points each Session. Fee \$18 each Session. Dr. Poffenberger

Section 1 — 4.30-5.45 p.m., Tuesday and Friday, Room 407a Schermerhorn Section 2 — 7-8.15 p.m., Tuesday and Friday, Room 407a Schermerhorn

This course is designed to give the student a knowledge of the essential facts and fundamental laws of psychology. It serves as an introduction to the more advanced courses in psychology and philosophy, and also meets the requirements of boards of education for a course in general or pure psychology. The first part of the course deals with the nervous system and sensation, the second part with the higher mental processes.

Psychology e135-136 — Recognition and treatment of abnormal mental states. Lectures, discussions, and actual clinical cases for direct study. Credit II. Half course each Session. Dr. Bisch

4.30-6.10 p.m., Wednesday, Room 407 Schermerhorn. Fee \$12 each Session

During the Winter Session the topics include, among others, anatomy of the nervous system, certain organic diseases, individual differences in general, precocity, retardation, arrested development, various types of feeble-mindedness, nervous irritability, specialized intellectual defects, moral eccentricities, etc.

During the Spring Session various psychological tests, the different psychoses, the psychoneuroses, prophylaxis, sex-hygiene, hypnosis, psychoanalysis, etc., will be taken up.

Psychology e145-146 — Applied psychology. Lectures, demonstrations and discussions. Credit II. Half course each Session. Either Session may be taken separately. Professor Hollingworth

4.10-5.50 p.m., Wednesday, Room 401 Schermerhorn. Fee \$12 each Session

The laws and methods of experimental psychology will be applied to such fields as advertising and selling, skill and efficiency, observation and testimony, medicine, eugenics, vocational guidance and individual differences, industrial motion-study and the diagnosis and treatment of mental defectiveness.

Psychology e165-166 — Social psychology. Lectures, discussions and readings. Credit II. Half course each Session. Professor Woodworth 6.40-8.20 p.m., Tuesday, Room 407 Schermerhorn. Fee \$12 each Session

Course e165 examines human nature as the basis for social life, and considers the social instincts and tendencies, the social traits, varieties of social behavior, and the psychology of crowds and peoples. Course e166, which can be taken separately, centres about the problem of the mental constitution of the social group, and considers individual, sex, national and racial differences, and other aspects of psychological knowledge which are of importance to the student of society and social problems.

Prerequisite: Psychology e1-2 or an equivalent.

Psychology e235-236 — Recognition and treatment of abnormal mental states — advanced course. Lectures, discussions, and conferences, together with clinical material. Credit II. Full course each Session. Dr. Bisch 7-8.40 p.m., Wednesday, Room 707 Journalism. Fee \$24 each Session

Detailed and comprehensive study of certain abnormal mental conditions of wide community interest, such as alcoholism, drug addictions, moral deviations, etc., together with intensive study of topics outlined under Psychology e135-136. So far as feasible directed original investigations will be pursued by each student.

Prerequisite or parallel: Psychology e135-136, or equivalent, but only with the consent

of the instructor.

Business e117-118 — Psychology of advertising and selling. Credit II, half course or full course; Credit IX, 2 points each Session. Professor HOLLINGWORTH

7.40-9.30 p.m., Monday, Room 407 Schermerhorn. Fee \$12 (half course or 2 points); \$24 (full course)

For description see p. 30.

#### RELIGION AND RELIGIOUS EDUCATION

Religion e5 — Survey of Old Testament literature and history. Lectures and discussions. 1 point Winter Session. Mrs. MERRETT

4.10-5.50 p.m., Friday, Room 301 Mines. Fee \$6

This course presents the fundamental structure and ideas of the Old Testament as a background for teaching or for general knowledge. The compilation of the literature, the main historical outline, the value and meaning of the folklore and traditional stories, the poetic and prophetic elements, the Apocalyptic literature.

(An arrangement can be made to give this course outside the University.)

Religion e6 — The religious education of children. Designed for parents and teachers. 1 point Spring Session. Mrs. Merrett

4.10-5.50 p.m., Friday, Room 301 Mines. Fee \$6

The religious aspects of child life and growth, the place of home and church in religious education, training in worship, selecting and grading the Biblical material. Outlines. Preparation and plan for model lessons. Story telling — the psychology of the story, dramatization of stories.

(An arrangement can be made to give this course outside the University.)

## ROMANCE LANGUAGES

All the undergraduate courses in Romance languages in Extension Teaching are under the general supervision of Professor Loiseaux; office hours, 4.15 p.m., Tuesday and Friday, Room 201 East Hall

### French

French eA1-A2 — Elementary course. Credit I, IV. 3 points each Session. Fee \$18 each Session

Section 1-4.30-5.45 p.m., Monday and Thursday, Room 408 Avery. Dr. ALEXANDER

Section 2-4.30-5.45 p.m., Tuesday and Friday, Room 408 Avery. Dr. Alexander

Section 3 — 7-8.15 p.m., Monday and Thursday, Room 307 Hamilton. Mr. DE BACOURT

Section 4 — 4.30-5.45 p.m., Monday and Thursday, Room 612 Journalism. Mr. DE BACOURT

This course is intended for students who have no previous knowledge of French.

The instruction is planned so as to enable students to read at sight ordinary French prose. Reading will constitute a large part of the work of the course. In connection with the reading, a careful study of the essentials of grammar and syntax will be taken up together with simple composition. Attention will be paid to correct pronunciation and as far as possible to the understanding of simple spoken French. Equivalent to Course A1-A2 as given in Columbia College.

Text-books: Fraser and Squair, French Grammar; François et Giroud, Simple French; Dumas, L'évasion du Duc de Beaufort; Labiche et Martin; Le Voyage de Monsieur Perrichon.

French eA3-A4 — Elementary course. Equivalent to Course eA1. Credit I, IV. 1½ points each Session. Mr. SWANN

9.30-10.45 a.m., Saturday, Room 605 Journalism. Fee \$9 each Session

This course will enable the student to master the elements of French grammar, the regular verbs, simple idioms, a few of the irregular verbs, and enough of the subjunctive to make possible the reading of easy French. Some attention will be paid as far as possible to the training of the ear in understanding spoken French.

French eA5-A6 — Elementary course. Equivalent to Course eA2. Credit I, IV. 13 points each Session. Mr. SWANN

11 a.m.-12.15 p.m., Saturday, Room 713 Journalism. Fee \$9 each Session

This course is supplementary to Course eA3-A4.

French eA8 — Elementary course. Credit I, IV. 3 points Spring Session. Fee \$18

Section 1 — 4.30-5.45 p.m., Tuesday and Friday, Room 612 Journalism. Mr. Swann

Section 2 — 7-8.15 p.m., Monday and Thursday, Room 309 Hamilton. Dr. Mantz

Equivalent to French eA1, given in the Spring Session for students who enter at that time. This course should be followed by French eA9 in the succeeding Session. For description see Course eA1-A2 above.

French eA9 — Elementary course. Credit I, IV. 3 points Winter Session. Fee \$18

Section 1-4.30-5.45 p.m., Tuesday and Friday, Room 612 Journalism. Mr. Swann

Section 2-7-8.15 p.m., Monday and Thursday, Room 309 Hamilton. Dr. Mantz

Equivalent to Course eA2. Planned also for students who began the study of French in the Summer Session. It is suitable for persons who have had one year of French.

French eB1-B2 — Intermediate course — grammar, reading and composition. Credit I, IV. 3 points each Session. Fee \$18 each Session

Section 1 — 4.30-5.45 p.m., Monday and Thursday, Room 307 Philosophy. Professor BIGONGIARI

Section 2-7-8.15 p.m., Tuesday and Friday, Room 307 Hamilton. Dr. Mantz

In Course eB1, the work will include a review of the essentials of grammar, and in Course eB2, some oral practice in reading and conversation. The reading will consist of narrative and historical texts, and several plays.

Text-books: Anatole France, Le Livre de mon Ami; Victor Hugo, Quatre vingt-treize; Daudet, Tartarin de Tarascon; René Baxin, Les Oberlé; Augier et Sandeau, Le Gendre ds M. Poirier; Fontaine, French Composition.

Equivalent to Course B1-B2 as given in Columbia College.

French eB3-B4 — Intermediate course — grammar, reading and composition. Equivalent to Course eB1. Credit I, IV. 1½ points each Session. Dr. Mantz

12.15-1.30 p.m., Saturday, Room 512 Journalism. Fee \$9 each Session (For description of course see French eB1-B2).

French eB5-B6 — Intermediate course. More advanced than French eB3-B4. Equivalent to Course eB2. Credit I, IV. 11 points each Session. Dr. Mantz

2-3.15 p.m., Saturday, Room 512 Journalism. Fee \$9 each Session

French e3-4 — Practical course and introduction to French literature. Composition, readings and lectures. Credit I, IV. 3 points each Session. Professor Fortier

4.30-5.45 p.m., Tuesday and Friday, Room 307 Philosophy. Fee \$18 each Session

The work is to consist of dictations and conversations on the history of French literature, supplemented by the reading of selected works from representative authors. Students will also be required to write themes in French.

Text-books: Voltaire, Le Siècle de Louis XIV; Bossuet, Oraisons Funèbres; Taine, L'Ancien Régime; Balzac, Eugénie Grandet; Renan, Souvenirs d'Enfance et de Jeunesse; Ste. Beuve, Causeries du Lundi (1 vol. Garnier); Oxford Book of French Verse.

French e5-6 — General survey of French literature in the seventeenth century. Credit I, IV. 3 points each Session. Professor Loiseaux

4.30-5.45 p.m., Tuesday and Friday, Room '201 East. Fee \$18 each Session

The subject of the course is the history of French literature during the century of Louis XIV. The principal authors studied will be Descartes, Pascal, Bossuet, Madame de Sévigné, La Rochefoucauld, La Bruyère, Corneille, Molière, Racine, Boileau and La Fontaine. The course is conducted entirely in French.

Text-books: Lanson, Histoire de la Littérature Française (eleventh edition), and the works of the authors named above.

Equivalent to Course 5-6 as given in Columbia College and Barnard College.

French e9-10 — Advanced composition and practice in speaking French. Credit I, IV. 3 points each Session. Professor Fortier

4.30-5.45 p.m., Monday and Thursday, Room 405 Avery. Fee \$18 each Session

The objects of this course are to give students a thorough appreciation, and, so far as possible, mastery of the French language as an instrument of expression. The exercises will consist of composition, reading aloud, reciting and letter writing. A general study will be made of the constitution of the language and of the different ways ideas present themselves to the English and French mind. During the Spring Session, a careful study will be made of the principles of French versification and diction.

Text-books: Larive et Fleury, Troisième année de Grammaire; La Fontaine, Fables;

Leune, Difficult Modern French; Blanchard, French Idioms.

For outside reading: Reinach, L'Eloquence politique en France au XIXe siècle.

French e11-12 — French literature, after the classical period. Credit I, IV. 3 points each Session. Professor Muller

7-8.15 p.m., Monday and Thursday, Room 507 Hamilton. Fee \$18 each Session

The object of the course will be to make the students acquainted with the masterpieces that have been produced in France since the beginning of the eighteenth and nineteenth centuries. The writers chiefly studied will be Montesquieu, Voltaire, Rousseau, Diderot, Le Sage, Chateaubriand, Victor Hugo, Balzac, George Sand, Michelet, Renan, Sainte-Beuve, Emile Augier and Alexandre Dumas Fils.

French e105-106 — History of French literature in the nineteenth century. Credit II. Full course each Session. Professor Spiers

4.30-5.45 p.m., Monday and Thursday, Room 201 East. Fee \$24 each Session

Course e105 will be devoted to the romantic movement up to about 1850 and will treat mainly of Madame de Staël, Chateaubriand, Hugo, Lamartine, Vigny, Musset, George Sand and Balzac.

Course e106 deals with the literature of the period since the collapse of the Second French Republic. It includes a study of Hugo in the latter part of his career, Museet, Taine, Daudet, Anatole France, the poetry of the Parnassians and Symbolists and some of the most recent dramatists.

Books of reference: Lanson, Histoire de la Littérature Française; Wright, History of

French Literature.

### Italian

Italian e1-2 — Elementary course. Credit I, IV. 3 points each Session. Professor Livingston

7-8.15 p.m., Monday and Thursday, Room 501 Hamilton. Fee \$18 each Session

The aim of this course is to impart an accurate reading knowledge of modern Italian, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax, and in Course e2 special attention will be paid to Italian composition.

Italian e3-4 — Advanced course. Credit I, IV. 3 points each Session. Professor Livingston

7-8.15 p.m., Tuesday and Friday, Room 309 Hamilton. Fee \$18 each Session

In this course much more reading is done than in Course e1-2. The two courses together may be considered a preparation for the graduate courses in the University.

## Spanish

Spanish e1-2 — Elementary course. Credit I, IV. 3 points each Session. Fee \$18 each Session

Section 1-3.10-4.25 p.m., Monday and Thursday, Room 709 Journalism. Mr. Imbert

Section 2-7-8.15 p.m., Tuesday and Friday, Room 712 Journalism. Mr. Hayden

Section 3-4.30-5.45 p.m., Tuesday and Friday, Room 302 Engineering. Mr. Agramonte

Section 4-7.30-8.45 p.m., Monday and Thursday, Room 503 Hamilton. Mr. WILKINS

The aim of this course is to impart an accurate reading knowledge of modern Spanish together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in Course e2 special attention will be paid to Spanish composition.

Text-books: Loiseaux, Spanish Grammar, Elementary Spanish Reader, Spanish Composition; P. A. de Alarcón, El Capitán Verenco; Galdós, Marianeta, Doña Perfecta; Carrión y Aza, Zaragüeta. Text-books subject to change.

y Aza, Zaragüeta. Text-books subject to change.
Outside reading: Valera, El Pajaro Verde; Le Sage, Gil Blas (Padre Isla's translation).
Equivalent to Course 1-2 as given in Columbia College.

Spanish e3-4 — Advanced course. Credit I, IV. 3 points each Session. Fee \$18 each Session

Section 1 — 4.30–5.45 p.m., Monday and Thursday, Room 303 Hamilton. Professor Gerig

Section 2 — 8.20-9.35 p.m., Monday and Thursday, Room 307 Hamilton. Mr. HAYDEN

Second year course. A continuation of Course e1-2, in which emphasis will be placed on rapid reading of modern prose, on advanced composition and conversation.

Text-books: Hills and Ford, A Spanish Grammar; Crawford's Spanish Composition; Valdés, José; Galdós, Marianela; Valera, El Comendador Mendoza. There will be some outside reading in connection with the course.

Equivalent to Course 3-4 as given in Columbia College.

Spanish e5-6 — Practical course and introduction to Spanish literature. Credit I, IV. 3 points each Session. Mr. IMBERT

4.30-5.45 p.m., Tuesday and Friday, Room 303 Hamilton. Fee \$18 each Session

The work consists of compositions, conversations and dictations on the history of Spanish literature supplemented by the reading of selected works by representative authors. Students will be required to write themes and reports in Spanish.

Text-books: Fitzmaurice-Kelly, Oxford Rook of Spanish Verse (1913); Fitzmaurice-Kelly, History of Spanish Literature (preferably the French version, 1913); Calderón, Selected Plays, ed. by Macoll; Lope de Vega, Obras Escogidas; Pereda, Pedro Sánchez; Cervantes, Don Quijote, etc.

Spanish e8 — Elementary course. Credit I, IV. 3 points Spring Session. Mr. Wilkins

6.10-7.25 p.m., Monday and Thursday, Room 605 Journalism. Fee \$18

A course for students who have no knowledge of Spanish. Equivalent to Course e1 above.

Spanish e9 — Elementary course. Credit I, IV. 3 points Winter Session. Mr. WILKINS

6.10-7.25 p.m., Monday and Thursday, Room 605 Journalism. Fee \$18
Follows Course e8 and is planned for students who have a fair knowledge of Spanish.

Spanish e11-12 — Elementary course. Credit I, IV. 2 points each Session. Mr. WILKINS

9.20-11 a.m., Saturday, Room 712 Journalism. Fee \$12 each Session A course for students having no knowledge of the language.

The attention of students in Romance languages is called to the evening classes in Spoken languages described in a separate bulletin.

# Summer Session Evening Courses

July 10-August 18

French esA1 — Elementary French. Credit I. 2 points Summer Session. Mr. OLINGER

6 p.m., Room 709 Journalism. Fee \$12

Intended for students who have no previous knowledge of French. The instruction is planned so as to enable the students to read at sight ordinary French prose. Reading will begin in the first lesson and will constitute a large part of the work of the course. Together with the reading a careful study of the essentials of grammar and syntax will be taken up in connection with composition. Attention will be paid to correct pronunciation and as far as possible to the understanding of simple spoken French. Students pursuing this course may continue by taking French in Extension Teaching in September.

Books: Aldrich and Foster, Foundations of French; François and Giroud, Simple French.

Portuguese es3 — Elementary: second course. Credit I. 2 points Summer Session. Mr. Bruce

7.30 p.m., Room 709 Journalism. Fee \$12

Intended for those who desire drill in the colloquial Portuguese of South America. Much time will be devoted to conversation, based on matters of current interest in Brazil. Correct pronunciation will be emphasized.

Spanish es1 — Elementary: first course. Credit I. 2 points Summer Session. Mr. Agramonte

7.30 p.m., Room 507 Journalism. Fee \$12

The student's energy in this course is concentrated chiefly upon the attainment of a full and accurate reading knowledge, to which end the study of grammar is subordinated, though made systematically to contribute. Special attention is paid to pronunciation.

Books: Loiseaux, Elementary Grammar of the Spanish Language; Spanish Reader;

Books: Loiseaux, Elementary Grammar of the Spanish Language; Spanish Reader P. A. de Alarcón, El Capitán Veneno. Equivalent to Spanish 1.

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Spanish esX1 — Spanish conversation, reading and oral practice: second course. 2 points Summer Session. Mr. AGRAMONTE

4.30 p.m., Room 603 Journalism. Fee \$12

This course is intended primarily for those who have already a reading knowledge of Spanish and who may wish to gain a practical command of the language. May be taken in connection with Course es1 by students wishing to have more practice in speaking Spanish.

### SANITATION

Given by the Department of Chemistry

Sanitation e1-2 — Municipal sanitation. Credit IV. 2 hours' lectures. 2 points each Session. Mr. Brown

7.30-9.10 p.m., Thursday, Room 311 Havemeyer. Fee \$12 each Session Water supplies, ice supplies, sewage treatment, refuse and garbage disposal, other wastes, fly and mosquito suppression, miscellaneous nuisances, rural sanitation.

Sanitation e3 — Elementary sanitary bacteriology. 2 hours' lecture and 6 hours' laboratory work a week. Credit IV. 5 points Winter Session. Mr. Buswell and Mr. Line

7-8.50 p.m., Tuesday, and 7-9.50 p.m., Wednesday and Friday. Fee \$30 Lecture, Tuesday, 7-8.50 p.m., Room 511 Havemeyer

Laboratory, Wednesday and Friday, 7-9.50 p.m., Room 515 Havemeyer

Elements of bacteriology, preparation of culture media, culturing and staining methods. Bacteriological examination of water and food.

Deposit \$15.

Prerequisite: Chemistry eA1.

Sanitation e4\*—Elementary sanitary chemistry. 2 hours' lecture and 4 hours' laboratory work a week. Credit IV. 3 points Spring Session. Mr. Buswell and Mr. Line

7-9.50 p.m., Tuesday and Wednesday. Fee \$18

Lecture, Tuesday, 7-8.50 p.m., Room 515 Havemeyer

Laboratory, Tuesday, 9-9.50 p.m., and Wednesday, 7-9.50 p.m., Room 515 Havemeyer

The object of this course is to present the subject matter of sanitary chemistry in such a manner that it may be easily grasped by students who have had the usual high school training in science. The course will consist of discussions of the general chemical characteristics of the atmosphere, water, food, disinfectants, deodorants, insecticides and deturgents, with a brief discussion of the composition of sewage and the reactions in sewage purification.

This course will be followed in the Winter Session of 1917-18 by Sanitation e5, which continues the work of e4.

Deposit \$15.

Prerequisite: Chemistry eA1.

[Sanitation e5 — Elementary sanitary chemistry. Mr. Buswell Not given in 1916-17. Will be given in 1917-18.]

[Sanitation e12 — Elementary food economics. 2 points Spring Session. Dr. Thomas

A non-technical discussion of the functions and nutritive values of food, and an outline of the more important food industries.

This course begins in February 1918.]

Sanitation e196 — Public health. Credit II. Half course Spring Session. Mr. Brown and Dr. FISHBERG

1.10-3 p.m., Tuesday, Room 311 Havemeyer. Fee \$12

<sup>\*</sup> Sanitation e4 followed by e5, optional with Chemistry e6-7.

General problems in public health. Sanitation as related to water, ice, milk, vegetables, shell fish and other uncooked foods. Sources and modes of infection. Transmission of disease by flies, mosquitoes and other insects. Communal sanitation.

Chemistry e78 — Sanitary bacteriological analysis. 2 hours' classroom and 6 hours' laboratory work a week. 5 points Spring Session. Mr. Buswell and Mr. Line

7-8.50 p.m., Tuesday, and 7-9.50 p.m., Wednesday and Friday. Fee \$30 Lecture, Tuesday, 7-8.50 p.m., Room 511 Havemeyer

Laboratory, Wednesday and Friday, 7-9.50 p.m., Room 515 Havemeyer

Practical instruction in bacteriology. Bacteriology of water, sewage, milk, etc. A short course for sanitary engineering students.

Deposit \$15.

Prerequisite: Chemistry e14-15.

Chemistry e79 — Sanitary chemical analysis. 2 hours' classroom and 3 hours' laboratory work a week. 3 points Winter Session. Mr. Buswell and Mr. Line

7–9.50 p.m., Tuesday, and 7–8.50 p.m., Wednesday. Fee \$18 Lecture, Wednesday, 7–8.50 p.m., Room 511 Havemeyer Laboratory, Tuesday, 7–9.50 p.m., Room 515 Havemeyer

Sewage analysis. Sanitary chemical water analysis. Deposit \$15.

Prerequisite: e72 or 65.

Chemistry e179 — Sanitary chemical analysis. Graduate section of e79. Credit II. Full course Winter Session. Mr. Buswell and Mr. Line

7-9.50 p.m., Tuesday, and 7-8.50 p.m., Wednesday. Fee \$24 Lecture, Wednesday, 7-8.50 p.m., Room 511 Havemeyer Laboratory, Tuesday, 7-9.50 p.m., Room 515 Havemeyer

Deposit \$15.

Prerequisite: Chemistry e72, or 65.

Chemistry e180 — Sanitary analysis. Advanced methods and special problems. Credit II. Full course Spring Session. Mr. Buswell and Mr. Line

7-8.50 p.m., Tuesday, and 7-9.50 p.m., Wednesday and Friday. Fee \$24 Lecture, Tuesday, 7-8.50 p.m., Room 511 Havemeyer

Laboratory, Wednesday and Friday, 7-9.50 p.m., Room 515 Havemeyer

Deposit \$15.

Prerequisite: e72, or 65.

For courses in Sanitary engineering see p. 43.

### SCIENCE OF LANGUAGE

Science of language e102 — The origin and development of language. Credit II. Half course Spring Session. Professor Prince

4.30-6.40 p.m., Friday, Room 405 Avery. Fee \$12

Lectures and discussions upon the beginnings and development of language. Collateral readings on the phenomena of language; isolation, agglutination, polysyntheses and inflection.

### SECRETARIAL CORRESPONDENCE

Secretarial correspondence e1-2 — Letter writing. 3 points each Session. Fee \$18 each Session. Miss Hull

Section 1 — 4.30-5.45 p.m., Monday and Thursday, Room 709 Journalism Section 2 — 7-8.15 p.m., Monday and Thursday, Room 302 Philosophy

This course is intended not only for those desiring employment as social secretaries, but also for those wishing to gain facility in the various forms of letter writing incident to leisure and wide activity. The aim is to gain a standard of judgment for conventional forms more or less fluctuating, to establish a correctness, both in form and expression, that shall accord with the best current usage; and to develop attractiveness of style and range and power of expression. To that end there will be constant practice in letter writing, based on a careful study of the best published letters, with special attention to their style and human interest. Students will be expected to have a grasp of elementary English grammar.

### SECRETARIAL STUDIES

The University offers through its School of Business and the Department of Extension Teaching courses in secretarial studies. In Extension Teaching these normally require two years, but they may be completed in one year by college graduates.

A special circular will be sent on application to the Secretary of Columbia University.

## SOCIOLOGY

## Sociology

Sociology e51 — Introductory sociology: elementary principles of sociology. Lectures and readings. Credit I, IV. 2 points Winter Session. Mr. SMITH 3.10-4 p.m., Tuesday and Thursday, Room 611 Journalism. Fee \$12

A non-technical course for mature students of society. The place of sociology among sciences. Analysis of the physical, biological and psychological factors conditioning social organization. Comparative study of the fundamental concepts of sociologists from Comte to Giddings. Sociological theories of human progress.

Sociology e52 — Practical sociology: social conditions in the United States. Lectures and readings. Credit I, IV. 2 points Spring Session. Mr. SMITH 3.10-4 p.m., Tuesday and Thursday, Room 611 Journalism. Fee \$12

A presentation of facts describing actual conditions of the social population of the United States. Population: density, increase, distribution, nativity, sex, age groups, marital condition, mortality, etc. Record of marriage and divorce. Nature and development of our educational and industrial organizations.

Sociology e141 — Social problems: immigration and social assimilation. Lectures, readings and discussions. Credit II, half course or full course; Credit IV, 2 points Winter Session. Fee \$12 (half course or 2 points); \$24 (full course). Mr. Shenton

Section 1 - 1.10-3 p.m., Thursday, Room 605 Journalism Section 2 - 7.40-9.30 p.m., Wednesday, Room 515 Kent

Immigration as a world movement. Why people migrate. Social significance of immigration and intra-migration, especially in the United States. Studies of nativity, race-mixture, social heterogeneity, standards of living, etc. The problem of assimilation or "Americanization." Constructive plans for the regulation of immigration and for the assimilation of the alien.

Full course credit will be given to students doing special work under the direction of the instructor.

Sociology e142 — Social problems: social betterment. Lectures, readings and discussions. Credit II, half course or full course; Credit IV, 2 points Spring Session. Mr. SHENTON

7.40-9.30 p.m., Wednesday, Room 614 Kent. Fee \$12 (half course or 2 points): \$24 (full course)

The development of movements for human betterment, including eugenics, euthenics, social legislation, socialized philanthropy and social education. Problems of normal and abnormal society. Constructive sociological criticism of various methods of social reform.

Full course credit requires special studies.

Sociology e143 — Social institutions: institutions of component society. Lectures, readings, discussions and exercises. Credit II, half course or full course; Credit IV, 2 points Winter Session. Mr. Shenton

7.40-9.30 p.m., Thursday, Room 615 Kent. Fee \$12 (half course or 2 points); \$24 (full course)

The effort of society to exert social self-control by means of folk-ways, folklore, "Mores," traditions and social institutions. Origin, development and present functions of the more fundamental social institutions and their present tendencies. institutions having their origin in the earliest forms of society, i.e., kinship, religion and politics, will be discussed during this Session.

Full course credit will be given only to students who have satisfactorily completed a study of some particular social institution.

Sociology e144 — Social institutions: institutions of constituent society. Lectures, readings, discussions and exercises. Credit II, half course or full course; Credit IV, 2 points Spring Session. Mr. Shenton

7.40-9.30 p.m., Thursday, Room 615 Kent. Fee \$12 (half course or 2 points): \$24 (full course)

Educational institutions will be studied in respect to their social beginnings, the crises in their development and their present functions in society. Social self-control will be further studied as it operates through legal institutions (including status, contract and social legislation); industrial institutions (including property and labor); political institutions (including leadership and organization); and the general institutions of democratic society. Policies of laissez faire as opposed to those of social control. Relations of individuals and social institutions to society.

Sociology e145 — Social policies: general problems of social adjustment. Lectures, readings and discussions. Credit II, half course or full course; Credit IV, 2 points Winter Session. Mr. THOMAS

7.40-9.30 p.m., Tuesday, Room 615 Kent. Fee \$12 (half course or 2 points); \$24 (full course)

Care of the weak by the strong, historically considered. Volunteer propagandist organizations. Philanthropy and the social surplus. Federal, state, county, civic and private philanthropic organizations. Other definite movements and organizations for social adjustment.

Sociology e146 — Social policies: special problems of social adjustmen Lectures, readings and discussions. Credit II, half course; Credit IV, 2 points Spring Session. Mr. Thomas

7.40-9.30 p.m., Tuesday, Room 615 Kent. Fee \$12

The care of the poor. Paupers both in and out of almshouses. Care of the sick-Dependent children. Care for the feeble-minded and the insane. In all cases including consideration of practical ways and means and development of critical and constructive programs.

Sociology e147-148 — Social statistics. Lectures, readings and laboratory exercises. Credit II. Full course each Session. Mr. Ross

7.40-9 p.m., Tuesday and Thursday, Room 502 Kent. Fee \$24 each Session

The elements of statistical theory that are particularly useful in the analysis of social problems. Averages, measures of dispersion, measures of relationship, reliability of measures. Practical application of the theory of statistics to religious, educational and other social data. Analysis of data, methods of presentation, training for investigations and the preparation of statistical reports.

Sociology e151 — Principles of sociology. Lectures, readings, discussions and exercises. Credit II, half course or full course; Credit IV, 2 points Winter Session. Mr. Shenton

7.40-9.30 p.m., Monday, Room 503 Kent. Fee \$12 (half course or 2 points); \$24 (full course)

A course in social theory. A statement and study of Professor F. H. Giddings' principles of sociology up to the present time. The scope and methods of sociology. Theories of social evolution, social causation and organization. The development of social consciousness and of the social mind. Comparative study of various theories of social progress.

Credit for full course will be given only to those who, in addition to the regular work, complete and are examined in a course of specially assigned readings, and who have done certain research or field work.

Text-book: Giddings, Descriptive and Historical Sociology.

Sociology e152 — Historical evolution of society. Lectures, readings and discussions. Credit II, half course or full course; Credit IV, 2 points Spring Session. Mr. Shenton

7.40-9.30 p.m., Monday, Room 503 Kent. Fee \$12 (half course or 2 points); \$24 (full course)

An historical study of progress in the light of social theories. Beginnings of human association and of the development of the social mind and social will. Studies of the integration and disintegration of civilizations. Continuous societal security. Evolution of sovereignty. Rise of liberty and democracy. Costs of democracy. Individual "rights."

Sociology e315-316 — Seminar. Discussions, research and thesis preparation. Credit II. Half course each Session. Mr. Shenton

7.40-9.30 p.m., alternate Tuesdays, beginning October 3, Room 503 Kent. Fee \$12 each Session

Methods of sociological study and research. Sociological sources. Work supplementing Sociology e141, e143, and e144—social assimilation and social institutions. Attention will be given to the preparation of the theses required of all candidates for the degree of M.A. in sociology.

Social Science: Special Courses

Social science e46 — Dependency among the Jews. Lectures, readings, written exercises and field work. Credit IV. 2 points Spring Session. Mr. Waldman

1.10-3 p.m., Thursday, Room 508 Philosophy. Fee \$12

Causes of dependency among the Jews. Factors in Jewish life in America which make their problem of dependency different from the general problem. A critical study of the principles, methods and achievements of modern social agencies for the care of Jewish dependents, especially of the Jewish agencies for that purpose. Problems of scientific relief, correction and prevention.

Social science e131-132 — Practical penal problems. Lectures, discussions and reports of first-hand investigations. Credit II. Half course each Session. Dr. Whitin

10-12 a.m., Saturday, Room 405 Kent. (Laboratory by special assignment). Fee \$12 each Session

The course deals with the application of scientific method to the penal problem, the economic interpretation of the evolution of the present penal institution, the legal status of the prisoner, administrative control, the indeterminate sentence, the receiving station, the farm-industrial prison, the employment of ex-prisoners, private agencies, capital punishment, the local jail, preventive measures and the juvenile institution, self-government vs. "the honor system," possibilities in social reconstruction.

Social science e134 — Practical penal problems. Lectures, discussions and reports of first-hand investigations. Credit II. Half course Spring Session. Dr. Whitin

4-6 p.m., Wednesday, Room 201 East. Fee \$12

Social science e131 repeated in the Spring Session.

Social science e135 — Practical penal problems. Lectures, discussions and reports of first-hand investigations. Credit II. Half course Winter Session. Dr. Whitin

4-6 p.m., Wednesday, Room 201 East. Fee \$12

Social science e132 given in the Winter Session.

Social science e142 — Jewish immigration. Lectures, readings, written exercises and field work. Credit II. Half course Spring Session. Dr. Joseph 7.40-9.30 p.m., Tuesday, Room 515 Kent. Fee \$12

A history of recent Jewish migration, particularly that coming to America. The causes, characteristics, and social and industrial problems involved in the migration. The assimilation of the Jewish groups. A study of the Federal Immigration Service and of Federal legislation regulating the immigration to this country.

# STENOGRAPHY AND TYPEWRITING

# Isaac Pitman System

The courses described below are planned for students who contemplate performing secretarial duties and for teachers and others who desire a thorough and practical knowledge of stenography and typewriting. These courses are completed in one college year of thirty weeks. A class for those who have no knowledge of the subjects is started at the beginning of each Session; such students, however, are likely to accomplish more by entering the class which begins in September and continues through the year without the long summer vacation intervening.

In addition to a careful presentation of the principles of shorthand and typewriting, instruction is also given in the following: secretarial and stenographic duties, common business forms, practical information for typists, the method of displaying the subject matter of a letter and its different parts and forms, the methods of teaching shorthand and typewriting, the cutting of stencils, the operation of the mimeograph, the different parts of the typewriter, its care and repair, the common business abbreviations, the handling of the telephone, information about the mails, the preparation of outgoing and incoming mail, the writing of telegrams and cablegrams, shipping and the papers involved, the common remittance forms, the method of taking dictation, the meeting of office callers, office reference books, etc. The work is carried on as nearly like that of a business office as is possible to be done in a classroom. The touch method is taught in all typewriting

Students registered in all stenography classes must pass an examination in elementary English, including grammar, composition, spelling, and punctuation, before receiving credit for the course.

Columbia University is in possession of a shorthand library consisting of 1,200 volumes

which are at the disposal of students.

The courses in stenography and typewriting are under the general supervision of Mr. William E. Harned, Room 509 Journalism.

## Morning Courses

On the completion of the day courses, students are able to write shorthand at the rate of one hundred and twenty-five words a minute and to transcribe their notes on the typewriter at the rate of twenty words a minute. In order to obtain the best results, students who register for stenography are urged to take the course in typewriting which corresponds with it, as designated below.

Stenography e1-2 — Elementary and intermediate. 6 points each Session. Mr. Harned

10-11 a.m. and 1-2 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 612 Journalism. Fee \$36 each Session

This course is planned for beginners and should be taken in conjunction with Type-writing e1-2. All secretarial students working for a certificate are expected to complete this course and Typewriting e1-2.

Typewriting e1-2 — Elementary and intermediate. 4 points each Session. Miss Dearborn

11 a.m.-12 m. and 2-3 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 601 Journalism. Fee \$24 each Session

This course is planned for beginners and should be taken in conjunction with Stenography e1-2.

Stenography e4 — Elementary. 6 points Spring Session. Mr. HARNED 11 a.m.-12 m. and 2-3 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 612 Journalism. Fee \$36

This course is planned for beginners and should be taken in conjunction with Type-writing e4.

Typewriting e4 — Elementary. 4 points Spring Session. Miss Dearborn 10-11 a.m. and 1-2 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 601 Journalism. Fee \$24

This course is planned for beginners and should be taken in conjunction with Stenography e4.

Stenography e5 — Intermediate. 6 points Winter Session. Mr. HARNED 11 a.m.-12 m. and 2-3 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 612 Journalism. Fee \$36

This course is planned for those who have completed Stenography e4 or e1, or the equivalent, and should be taken in conjunction with Typewriting e5. All secretarial students working for a certificate are expected to complete this course or Stenography e2.

Typewriting e5 — Intermediate. (Speed practice and transcription.) 4 points Winter Session. Miss Dearborn

10-11 a.m. and 1-2 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 601 Journalism. Fee \$24

This course is planned for those who have completed Typewriting e4 or e1, or the equivalent and should be taken in conjunction with Stenography e5.

## Afternoon and Evening Courses

The courses in the afternoon and evening are planned for those who can g ve but a portion of their time each day to the study of shorthand and typewriting. In February each course will be followed by a continuation class. Each course will also be repeated in February for beginners and will be followed in the autumn by a continuation class. Students registering for stenography are urged to take the course in typewriting which corresponds with it, as designated below. After a study of both shorthand and typewriting for forty-five or sixty weeks, students are able to write shorthand at the rate of one hundred words a minute and to transcribe their shorthand notes on the typewriter at the rate of twenty words a minute, thus enabling them to perform the usual stenographic duties in a business office.

Stenography e11-12 — Elementary. 3 points each Session. Miss Dearborn

5.15-6.15 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 610 Journalism. Fee \$18 each Session

This course is planned for beginners and should be taken in conjunction with Type-writing e11-12.

Typewriting e11-12 — Elementary. 2 points each Session. Mr. MILLER 4.15-5.15 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 601 Journalism. Fee \$12 each Session

This course is planned for beginners.

Stenography e14 — Elementary. 3 points Spring Session. Mr. MILLER 5.15-6.15 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 609 Journalism. Fee \$18

This course is planned for beginners and should be taken in conjunction with Type-writing e14.

Typewriting e14 — Elementary. 2 points Spring Session. Mr. MILLER 4.15-5.15 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 601 Journalism. Fee \$12

This course is planned for beginners.

Stenography e17-18 — Intermediate. 6 points each Session. Mr. Murphy 4.15-6.15 p.m., Monday, Tuesday, Wednesday, Thursday and Friday, Room 611 Journalism. Fee \$36 each Session

This course is planned for those who have completed Stenography e14-15 or e11-12 or the equivalent. A large portion of the class period is devoted to dictation or speed practice. However, a part of each class period is devoted to the transcription of short-hand notes either on the typewriter or in pencil. From time to time there is a little speed practice on the typewriter.

Stenography e21-22 — Elementary. 2 points each Session. Mr. HARNED 7.30-8.30 p.m., Monday, Wednesday and Friday, Room 601 Journalism. Fee \$12 each Session

This course is planned for beginners and should be taken in conjunction with Type-writing e21-22.

Typewriting e21-22 — Elementary. 2 points each Session. Mr. Harned 8.30-9.30 p.m., Monday, Wednesday and Friday, Room 601 Journalism. Fee \$12 each Session

This course is planned for beginners.

Stenography e24 — Elementary. 2 points Spring Session. Mr. MILLER 7.30-8.30 p.m., Monday, Wednesday and Friday, Room 610 Journalism. Fee \$18

This course is planned for beginners and should be taken in conjunction with Type writing e24.

Typewriting e24 — Elementary. 2 points Spring Session, Mr. MILLER 8.30-9.30 p.m., Monday, Wednesday and Friday, Room 601 Journalism. Fee \$12

This course is planned for beginners.

Stenography e25-26 — Spanish stenography. 3 points each Session. Miss von Walthern

7.30–9.30 p.m., Monday, Wednesday and Friday, Room 611 Journalism. Fee \$18 each Session

The object of this course is to provide instruction in Spanish stenography for students who desire to obtain a working knowledge of the principles of the Pitmanic system applied to the Spanish language.

Prerequisites: A knowledge of the principles of the Isaac Pitman system of stenography, equivalent to Course e1, and a fair speaking knowledge of Spanish.

## Summer Session Evening Courses

# July 10-August 18

Stenography es1 — Elementary. (Gregg.) 2 points Summer Session. Mr. Harned

7 p.m., Room 601 Journalism. Fee \$12

This course is planned for beginners and should be taken in conjunction with Type-writing es2.

Typewriting es2 — Elementary. 2 points Summer Session. Mr. Harned 8 p.m., Room 507 Journalism. Fee \$12

This course is planned for beginners.

#### TYPOGRAPHY

Typography e1 — Proof-reading and the preparation of manuscript. 2 points Winter Session. Mr. Bryant

4.30-6.10 p.m., Tuesday, Room 507 Journalism. Fee \$12

A brief outline of the history of typography will be followed by a practical explanation of present-day printing methods and a description of the different systems of hand and machine type-setting employed in modern establishments. Detailed instruction will be given in the preparation of manuscript for the compositor and in proof-reading. The work in proof-reading will include drill in the actual correction and revision of galley, page, and final proofs, with special attention to spelling, correct division of words, and uniformity in punctuation, capitalization, abbreviations, and minor matters of style. The work is planned to be of special value to authors, editors, secretarial students, and others who may be called upon to prepare manuscript for the printer.

## ZOÖLOGY

Zoölogy e1a-2a — Elementary biology and zoölogy. Lectures and laboratory. Credit I, IV. 2 points each Session. Professor McGregor

1.30-2.30 p.m., Saturday, Room 619 Schermerhorn. (Laboratory, 2.30-4.20 p.m., Saturday, Room 618 Schermerhorn.) Fee \$12 each Session

The earlier part of this course is designed to give the student an elementary knowledge of the basic principles of biology and the general physiology of organisms. Protoplasm, the cell, unicellular organisms, plant and animal in relation to each other and to the inorganic world are the chief topics discussed in the Winter Session. The Spring Session is mainly devoted to the study of the structures and adaptations of some of the more important groups of animals, with dissection of types in the laboratory. Among the types studied may be mentioned amoeba, paramecium, hydra, earthworm, lobster, grasshopper, clam, and dogfish. Practically equivalent to Zoölogy 1 in Columbia College.

A text-book will be used and collateral reading assigned.

Prerequisite: Natural science A, or elementary chemistry or physics.

## PRACTICAL ARTS

## Officers of Administration in the School of Practical Arts

JAMES EARL RUSSELI	, LL.D	Dean of Teachers College
MAURICE A. BIGELOY	v, Ph.DDirector of	f School of Practical Arts
CLIFFORD B. UPTON,	A.MSec	retary of Teachers College
J. Montgomery Gambrill, A.MAdviser to Non-matriculated Students		

The School of Practical Arts of Teachers College, in coöperation with the University Department of Extension Teaching, offers certain courses of instruction to qualified students who have not matriculated in any part of Columbia University as candidates for degrees. Such non-matriculated students will be admitted only to Practical Arts classes which are designated e (extension) or esp (extension special). The permission of the departments concerned must be obtained before registering for extension courses marked with (e.g., Cookery e2). Permission of departments is not required for admission to extension special courses.

Practical Arts extension courses which are announced as having Credit IV may be credited towards the Bachelor of Science degree if satisfactorily completed by non-matriculated students who afterward matriculate in the School of Practical Arts. The possible credit in points is stated in the description of courses.

Practical Arts extension special courses (marked esp; e.g. Cookery esp 42) are intended for popular instruction and can not be credited towards degrees or entrance requirements.

Matriculated students of Teachers College or of other parts of the University who wish to register for part-time programs should choose courses from the Announcement of the School of Practical Arts or from the special bulletin of Afternoon, Evening and Saturday Classes in Teachers College. The extension courses announced in this bulletin are not credited if taken by matriculated students unless they obtain in advance written permission from the Committee on Instruction.

Registration for Practical Arts Extension Courses.—Students register for Practical Arts extension courses at the office of the Registrar, University Hall, Columbia University. Information concerning such courses may be obtained at Table E in the office of the Secretary of Teachers College daily 9 a.m.-12 m., and 2-4 p.m., except Saturday afternoon; and also 7-8 p.m., on the evenings when courses begin.

Changes of programs, such as dropping or adding courses, can be made only at the Registrar's office in University Hall, where the complete records are kept on file. Permission to add courses marked with \* must be obtained from the instructor before changing programs at the Registrar's office.

Number of students required in classes is indicated in descriptions of certain courses. Such classes may be discontinued if the required number of students are not registered before the time for the second lesson.

Limited classes. Many classes for practical work are limited as to number of students. Such classes are indicated by the letter L affixed to the course number (e.g.,\* Cookery e2L). Extension students must reserve places by personal application to the clerk in charge of extension classes, Secretary's Office, Teachers College. Reservations must be made at the time of registration. Places will not be held for students who do not report to the instructor at the first lesson.

Students who register in the Winter Session for courses which extend throughout the year must at the beginning of the Spring Session call at the Registrar's office at University Hall, renew their registrations, and pay the tuition fees of the Spring Session.

Admission of extension students to Practical Arts classes with Credit IV will not be permitted after Saturday, October 7, unless for reasons of weight special permission for registration without credit is granted by the Director of the School of Practical Arts.

The University fee of \$5 per year is charged to all extension students who register for Practical Arts courses marked e, but not to those who take only the popular lecture courses marked esp.

Unless special dates are mentioned in the following pages, all courses in Practical Arts are on the regular schedule of the School of Practical Arts, beginning Wednesday, September 27, 1916, for the Winter Session, and Wednesday, February 7, 1917, for the Spring Session.

Special registration hours for extension students in Practical Arts for the Winter Session are Tuesday and Wednesday, September 26 and 27, 4 to 6 p.m., Saturday, September 30, 9 to 12; and for the Spring Session, Tuesday and Wednesday, February 6 and 7, 4 to 6 p.m., and Saturday, February 10, 9 to 12.

Courses for 1916–1917. — In the following pages are statements regarding the Practical Arts courses that are open to extension students during the academic year September 1916–June 1917. In Practical Science there are courses in biology and chemistry. In Fine Arts there are courses in art appreciation, art structure, drawing, painting, costume design, household design and decoration, art industries, art photography. In Household Arts there are courses of cookery, nutrition, textiles and clothing, and household administration and economics. In Industrial Arts there are courses in mechanical drawing, metalworking, woodworking and teaching industrial arts. In Music there are both lecture and practical courses for teachers and others. In Nursing and Health there are courses for nurses and home-makers. In Physical Education there are a few elementary courses for teachers and a number of exercise courses at hours convenient for those who are not college students.

The attention of students is called to the fact that the numbers of courses

and many details in the statement of the classes and hours are different in this section of the Announcement from those found on the preceding pages.

### PRACTICAL SCIENCE

Laboratory ticket: Students in all laboratory courses in the School of Practical Arts are required to purchase from the Bursar of Teachers College a laboratory breakage ticket, good for all science departments, price \$2. Unused coupons are redeemable at the end of any Session.

## Biology

- \*Biology e1 Elementary human anatomy and physiology. Credit IV. 2 points Winter Session. Miss Stackpole and assistant
  - 3.10-5 p.m., Tuesday and Thursday, Room 421 T. C. Fee \$12
- \*Biology e4x Biology for sex-education. Credit IV. 1 point Spring Session, when taken supplementary to any course in hygiene or biology. Open only to women. Miss Stackpole

5.10-6 p.m., Monday, Room 421 T. C. Fee \$6

A series of fifteen illustrated lectures and laboratory demonstrations dealing with the anatomical, physiological, embryological and bacteriological facts of biology which are necessary for understanding sex-education.

- \*Biology e51-52 Biological nature-study. Lectures, laboratory work, field work and reading. Credit IV. 2 points each Session. Professor Broad-HURST and Miss STACKPOLE
  - 3.10-5 p.m., Monday and Friday, Room 423 T. C. Fee \$12 each Session

This course is a general introduction to the nature-study of common animals and plants. The Winter Session is chiefly plant nature-study, while the Spring Session is largely devoted to animals. The names, life-histories, habits, relations to man, and other facts of popular interest concerning living things are emphasized. Trees and forestry, cultivated plants, wild flowers, birds, insects, domesticated animals, and other materials important in nature-study are selected for study. Both Sessions are essential for teachers of nature-study and biology, but general students may register for either Session.

\*Biology e57L — Elementary microbiology (including bacteriology). Lectures and laboratory work. Credit IV. 2 points. Professor Broadhurst and assistant

This half-year course requires (1) one lecture hour, (2) one demonstration and recitation hour, and (3) one two-hour laboratory period

8-11.50 a.m., Saturday, Winter Session, Room 423 T. C. Fee \$12. For the convenience of part-time students, the lectures, laboratory work and demonstrations are all given on the same day

Limited section. Requires a registration of fifteen students

This course deals with bacteria, molds, yeasts, and other micro-organisms, selecting for most attention the forms which affect everyday life. The bacteriological problems of personal and public hygiene and sanitation are included. Many of the studies directly involve important problems of home economics.

Prerequisite: Elementary biological laboratory study.

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration, and written permission obtained.

## Chemistry

(For general chemistry, see pp. 34-37.)

\*P. A. Chemistry e3A — Brief course for beginners in household arts. Credit IV. 4 points. Fee \$24. Miss Francis

Section I — 9-11.50 a.m., Tuesday and Thursday, Winter Session. Repeated as

Section II — Spring Session

Section III - 9-11.50 a.m., Wednesday and Saturday, Winter Session

An abbreviated course for students beginning the study of cookery, nutrition, or household administration. If students who take this course later wish to enter Chemistry 31 or 41, they must complete Chemistry 5.

\*P. A. Chemistry e25 — Food industries. Lectures, readings and demonstrations, varied with excursions to manufacturing establishments and reports on the processes inspected. Credit IV. 3 points. Fee \$18. Professor VULTÉ and Miss VANDERBILT

Section I — 10–11.50 a.m., Tuesday and Thursday, Winter Session. Repeated as

Section II - Spring Session

Section III — 10-11.50 a.m., Monday and Friday, Winter Session. Repeated as

Section IV - Spring Session

Room 400 T. C.

The lectures describe the preparation of the various staple foods, from the raw state to the finished product in marketable form and includes a discussion of the composition and cost of the available materials. Among the various subjects considered are the cereals, flours, meals, starch, bread, sugars, meats, edible oils, dairy products, tea, coffee, chocolate, alcoholic beverages, spices and condiments. The processes of drying, salting, smoking, canning and preserving are described. Adulteration and substitution are also considered.

Prerequisite or parallel: A course in general chemistry.

\*P. A. Chemistry e31L — Household chemistry. Lectures and laboratory work. Credit IV. 4 points. Fee \$24. Professor Vulté, Miss Vander-Bilt and Mrs. McGowan

Section I — 9-11.50 a.m., Monday and Friday, Winter Session. Repeated

Section II - Spring Session

Section III — 9-11.50 a.m., Tuesday and Thursday, Winter Session

Section V = 9-11.50 a.m., Wednesday and 2.10-5 p.m., Friday, Winter Session. Repeated as

Section VI - Spring Session

Limited sections

Room 405 H. A.

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration, and written permission obtained.

This course includes the study of water - composition, analysis and purification; liquid and gaseous fuels - composition, manufacture, properties and testing; hydrocarbons - classification and properties; alcohols, aldehydes, acids; examination of fruit products; carbohydrates; testing of flours, meal, cereals, etc.; fats - properties, testing for purity, soap making; proteins - classification, properties, examination of eggs, meat and meat extracts, gelatine, milk and cheese, baking powders; tea, coffee, cocoa.

Prerequisite: A course in general chemistry equivalent to Chemistry eA1-A2. Chem-

istry 25 is recommended.

\* P. A. Chemistry e31A. Credit IV. 4 points Spring Session. A modification of Chemistry 31 for students in household administration and others desiring a general survey of household chemistry and physics.

2.10-5 p.m., Monday and Wednesday, Room 405 H. A. Fee \$24

Prerequisite: Chemistry e3A or eA. This course does not admit to more advanced courses in chemistry unless the student has completed the equivalent of Chemistry eA1-A2.

Industries esp 24. — A lecture course on food industries. See p. 119.

### FINE ARTS

## Art Appreciation and History

\* Fine arts e69-70 - Art appreciation. History of art. Lectures and required reading. Credit IV. 2 points each Session. Professor Dow

4.10-5.30 p.m., Tuesday. Horace Mann Auditorium. Fee \$12 each Session

Appreciative study of painting, sculpture, architecture and design, in historical develop-

First part of course: nature of space arts, principles common to them all; art structure, composition of line and mass, color-theory, art criticism.

In the historical study, general chronological order is followed, but facts as to dates and periods are to be derived from the text-book, Reinach's Apollo. Reading is tested by written exercises. The course is illustrated by lantern.

\* Fine arts e68 — Museum guidance. Credit IV. 2 points Spring Session. Professor Cornell

2.30-5 p.m., Monday. Requires fifteen students. Fee \$12

Lectures, studio work and visits to museums. Critical studies of painting, design and handicraft, for purposes of general appreciation of art. Copying and sketching. For those who desire, applications in decoration, painting and teaching.

General principles of art; line harmony, spacing, proportion, rhythm; dark-andlight in two values; color in theory and practice; copies of masterpieces; variations and original designs; exercises with brush and ink, charcoal, colored crayons, water color.

### Art Structure

\* Fine arts e1 -- Art structure A. For teachers, designers, illustrators, craftsmen and painters. Lectures and studio work. Credit IV. 3 points. Fee \$18. Professors Dow and Cornell and Miss Tannahill

Section I — 9-11.50 a.m., Monday and Wednesday, Winter Session Section II — 2.10-5 p.m., Tuesday and Thursday, Spring Session

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration, and written permission obtained.

Section III — 9-11.50 a.m., Tuesday and Thursday, Winter Session Room 430 Macy

General principles of art; line harmony, spacing, proportion, rhythm; dark-and-light in two values; color in theory and practice; copies of masterpieces; variations and original designs; exercises with brush and ink, charcoal, colored crayons, water color. Reading, Dow's Composition.

\*Fine arts e2 — Art structure B. Continuation of Fine arts 1. Lectures and studio work. Credit IV. 3 points Spring Session. Fee \$18. Professors Dow and Cornell and Miss Tannahill

Section I — 9–11.50 a.m., Monday and Wednesday Section II — 9–11.50 a.m., Tuesday and Thursday Room 430 Macy

Principles of composition; line harmony in pattern, landscape and lettering; scales of dark-and-light; massing in three or more values; color in design and pictures. Applications in painting, decoration and landscape in charcoal. Copying in museums.

Reading, Day's Pattern Design; Johnston's Writing, Illuminating and Lettering; Dow's Composition.

\*Fine arts e51a-52a — Art structure Ca. Lectures and studio work. Credit IV. 2 points each Session. Professor Dow and Miss Tannahill

9-11.50 a.m., Saturday, and three hours outside work weekly. Fee \$12 each Session

An abridged course in theory and principles of art. (See Fine arts 1, 2, 51-52 for teachers, designers, illustrators, craftsmen and painters.)

Exercises in composition. Brush drawing and painting; charcoal studies; color in theory and practice. Assigned reading and museum work.

\*Fine arts e3 — Elementary drawing. Credit IV. 2 points. Fee \$12. Mr. Martin

Section I — 2.10–4 p.m., Tuesday and Thursday, Winter Session. Repeated as

Section II — Spring Session

Section III-IV-4.10-6 p.m., Wednesday, Winter and Spring Sessions

Outline, relief, light and shade. Perspective. Drawing from still life, flowers and casts; landscape sketching. Charcoal, brush, pencil. Copying of masters' drawings.

\*Fine arts e75 — Lettering. Credit IV. 3 points Winter Session. Miss Tannahill

2.10-5 p.m., Tuesday and Thursday. Fee \$18

Lectures and studio work. Art in lettering. Ancient and modern lettering. Reedpen, steel pen, brush, and stick lettering. Applications in posters, cards, title-pages, inscriptions and illuminations.

Prerequisite: Fine arts 1.

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration, and written permission obtained.

Fine arts e76 — Lettering. Credit IV. 2 points Spring Session. Miss Tannahill

3.10-6 p.m., Friday. Fee \$12

An abbreviated course similar to Fine arts e75.

\*Fine arts e53-54 — Drawing and painting. Credit IV. 2 points each Session. Fee \$12 each Session. Mr. Martin

Section I — 9-10.50 a.m., Tuesday and Thursday Section II — 2.10-4 p.m., Wednesday and Friday

Expression by line, modeling in line, shading, gradation, values, perspective, modeling in tone, technique of charcoal. Painting in oil and water color, figures, animals, land-scapes. Copying in museums.

Reading, Knowlton's Hints on Sketching from Nature; Ross' Drawing and Painting.

Prerequisite: Fine arts 3 or equivalent.

\*Fine arts e53a-54a — Drawing and painting. Credit IV. 2 points for the entire course. Mr. Martin

9-11.50 a.m., Saturday, Room 435 Macy. Fee \$6 each Session

Freehand drawing in charcoal and pencil from objects, cast, still life and costumed figure,

Shading, gradation, values, texture, and tone-modeling. Painting in oil and water color.

\*Fine arts e93-94 — Life class for women. Credit IV. 3 points each Session. Professor Bement

9-11.50 a.m., Monday, Wednesday and Friday, Room 435 Macy. Special fee \$24 each Session. Not charged at \$6 per point

Open only to those who have satisfactorily completed Fine arts 53-54. Drawing and painting from living model. Two criticisms per week.

# Household Design and Decoration

\*Fine arts e11 — Household design, elementary. Studio work. Credit IV. 3 points. Fee \$18. Professor Warner and Mr. Meeker Section I — 9-11.50 a.m., Tuesday and Thursday, Winter Session Section II — 2.10-5 p.m., Tuesday and Thursday, Spring Session Section III — 2.10-5 p.m., Tuesday and Thursday, Winter Session

Study of general principles of designing. Applications in designs directly related to the problems of the home.

Section I is recommended for students of house decoration.

Reading suggested, see under Fine arts 1.

Room 505 H. A.

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m., on September 26 or February 6. The instructor must be consulted before registration, and written permission obtained.

- \*Fine arts e14 Principles of home decoration. Lectures and studio work. Credit IV. 3 points Spring Session. Professor Warner and Mr. Meeker
  - 9-11.50 a.m., Monday and Friday, Room 505 H. A. Fee \$18

Principles of spacing, dark-and-light and color applied to problems of the home; economics of furnishing and decorating. Visits to shops.

\*Fine arts e59-60 — Metalwork design. Credit IV. 3 points for the entire course. Professor Warner

9-11.50 a.m., Friday, Room 505 H. A. Fee \$9 each Session

The principles of line and mass are applied in designs for metalwork. Gas fixtures, lamps, andirons, fire irons, fireplace hoods, candlesticks, hinges, pulls, escutcheons, etc. The execution of the projects is provided for in Metalworking 32, which should be elected parallel.

Prerequisites: Fine arts 1 and 2 and Drawing 3-4 or their equivalents.

\*Fine arts e80 — Home furnishings. Illustrated lectures, readings and reports. Credit IV. 4 points Winter Session. Professor Warner 9-10.50 a.m., Tuesday and Thursday, Room 101 H. A. Fee \$24

A practical course in the decoration and furnishing of the entire home. The problem of artistic and economic furnishing, the costs of materials and labor. Estimates for specific problems, exhibits of many materials, and excursions to shops will be included.

## Costume Design

\*Fine arts e21 — Costume design. Credit IV. 3 points. Fee \$9 each Session for Section V

Section V — 9-11.50 a.m., Saturday, Winter and Spring Sessions. Mr. Wilson

Room 507 H. A.

Students specially qualified in textiles and clothing may be admitted to other sections by permission of Miss Wilmot and the Director of the School. See Costume Design in the Announcement of the School of Practical Arts.

Design in costume; rhythm of line; harmonies of tone. Sketching gowns and hats; original designs for gowns and hats for various types. Pencil, pen and ink, charcoal, blackboard drawing. For teachers in household arts education and in costume design, and for professional designers.

\*Fine arts e73-74 — Life class for costume design. Credit IV. 3 points each Session. Professor Bement

Hours to be arranged, probably 9-11.50 a.m., Monday, Wednesday and Friday. Special fee \$24 each Session. Not charged at \$6 per point

#### Art Industries

\*Fine arts e31-32 — Design in the art industries. Lectures and studio work. Credit IV. 3 points each Session. Professor Dow and Mr. Thatcher

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration, and written permission obtained.

9-11.50 a.m., Monday and Wednesday, Room 236 Macy. Fee \$18 each Session

Instruction in principles and practice of design. Training for professional designers and craftsmen. Drawing with brush and ink. Painting in fresco and water color. Line design and space filling. Tone and masses. Color theory, color scheming. Original design with special problems in architectural detail, furniture, house decoration, metal, textiles and stained glass.

Reading, Dow's Composition, Day's Ornament and Its Application and Pattern Design.

\*Fine arts e85-86 — Color printing. Credit IV. 2 points each Session. Special fee \$16 each Session. Not charged at \$6 per point. Mr. Preissig Section I — 2.10-5 p.m., Monday and Friday

Section II — 9-11.50 a.m., Thursday and Saturday

Room 427 Macy

Requires eighteen students in each section

A course in color printing for painters, designers, craftsmen and teachers. Color printing from linoleum and zinc plates and from wood blocks. Illustrations, posters, advertising and festival cards, and advanced work in pictorial color printing. How to print at home with inexpensive equipment.

This course is open to those who have completed the art structure courses at Teachers College known as Fine arts 1, 2 and 51-52, or who have had at least one year's training

in design.

\* Metalworking e1 — Hammered metal. Credit IV. 2 points Winter Session. Mr. Thatcher

9-10.50 a.m., Tuesday and Thursday, Rooms 26 and 243 Macy. Fee \$12

The course offers instruction in hammered and raised work. The processes include forming of bowls, trays, boxes, candlesticks, furniture fittings and other shapes, and their enrichment by repousse; coloring of metals by patinas. Design is considered in relation to the projects.

Students should elect Fine arts 1 parallel, and if possible Fine arts 31-32.

Metalworking e2 — Silversmithing. Credit IV. 2 points Spring Session. Mr. Thatcher

9-10.50 a.m., Tuesday and Thursday. Fee \$12

The course continues Metalworking 1, taking up problems in hammered silver, hard and soft soldering, etching, repousse, finishing and coloring and enameling.

Prerequisite: Metalworking 1. Students should elect Fine arts 2 parallel, and if possible Fine arts 31-32.

\* Metal working e5-6 — Jewelry. Shopwork. Credit IV. 2 points each Session. Fee \$12 each Session. Mr. Thatcher

Section I - 2.10-4 p.m., Monday and Wednesday

Section II — 4.10-6 p.m., Monday and Wednesday

Room 243 Macy

Instruction is offered in the making of buckles, fobs, chains, necklaces, pendants, rings, setting of stones, casting of silver; polishing and finishing of metals; coloring by chemical and electrolytic methods. Design is considered in relation to the problem.

Prerequisites for Sections I and II: Metalworking 1, 2; and a design course, which may be taken parallel.

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration, and written permission obtained.

# Art Photography

\*Fine arts e7-3 — Art photography I. Lectures and laboratory work. Credit IV. 2 points each Session. Mr. White

4.10-6 p.m., Wednesday, and 9-10.50 a.m., Saturday, Room 325 Macy. Extra hours desirable but optional. Special fee \$18 each Session. Not charged at \$6 per point

Begins October 4. Requires ten students

Application of art to photography, and instruction in the use of the camera. Field and laboratory work, developing, printing and mounting.

Practice in the use of the camera in the field and in the studio on Saturday mornings. Recommended preparatory: Fine arts 1, 2.

\*Fine arts e37-38 — Art photography II. Lectures and laboratory work. Credit IV. 2 points each Session. Mr. White

4.10-6 p.m., Thursday, and 9-10.50 a.m., Saturday, Room 325 Macy. Extra hours desirable but optional. Special fee \$18 each Session. Not charged at \$6 per point. Begins October 5. Requires ten students

Making negatives, positives and enlarged negatives, the manipulation of negatives and printing papers. Coating of papers. Photography in landscape, architecture, illustration and portraiture. Mounting, framing and lantern-slide making.

Practice will be offered in the use of the camera in the field and in the studio on Saturday mornings and at other times in the studio by appointment.

Prerequisite: Art photography 1 or equivalent.

# Mechanical Drawing

Certain advanced courses in mechanical drawing offered in the School of Practical Arts are open to Extension students who have completed the courses described in the annual Announcement. See the Announcement of the School of Practical Arts and consult the Director of that School.

Other and more advanced courses in fine arts, described in the Announcement of the School of Practical Arts, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor Dow.

Education e181-182 — School and community festivals. See under Physical Education

Education e181x-182x — Practical work supplementary to Education e181-182. See under Physical Education

<sup>\*</sup>A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration and written permission obtained.

### HOUSEHOLD ARTS

See Cookery (p. 105), Nutrition and Food Economics (p. 108), Textiles and Clothing (p. 109), Household Arts — Fine Arts (p. 101), Household Administration (p. 114).

## Cookery

The classes in cookery meet in Rooms 201–214 Household Arts Building, Teachers College

Costume for foods and cookery laboratories: Students are requested to wear white cotton clothing; plain skirt; tailored waist; plain white collar; no color in ties or bows of neckwear; long plain white apron with bib (for laboratory only); little if any jewelry

Limited sections: For all "limited" courses (indicated by L following the number, e.g., Cookery e2L) students must reserve places before completing registration. See p. 96

Any limited section with less than ten students may be discontinued after the first lesson

Cookery e1 — Technology of cookery. Lectures, demonstrations and laboratory work. Credit IV. 2 points. Fee \$12. Professor Van Arsdale Miss French, Miss Frame and Miss Stone

Section I — 1.10–2 p.m., Monday, Wednesday and Friday, Winter Session. Repeated as

Section II - Spring Session

Section III —  $1.10-2\,$  p.m., Tuesday, Wednesday and Thursday, Winter Session. Repeated as

Section IV — Spring Session

Section V — 9-11.50 a.m., Saturday, Winter Session

The purpose of this course is to develop skill in the technique of cookery by means of a systematic introduction to the principles and processes and food materials involved. Required as a prerequisite or parallel to all courses in cookery. Students are advised to take general chemistry and physics parallel.

\* Cookery e2L — Elements of cookery. Lectures and laboratory work. Credit IV. 3 points. Special fee \$24. Not charged at \$6 per point. Mrs. Gunn

Section I — 2.10–5 p.m., Monday and Wednesday, Winter Session. Repeated as

Section II — Spring Session

Section III–IV —  $2.10\text{--}5\,$  p.m., Friday, Winter and Spring Sessions. Begins September 29

Limited sections

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration, and written permission obtained.

This course is for students of household administration, nursing and health, teachers of home-making, and others not majoring in foods and cookery. It includes a general survey of the elementary principles of cookery, with an introduction to pianning and serving meals in the home. Elementary chemistry, physics and biology are desirable preliminary or parallel courses. This course does not satisfy the prerequisites for other courses of cookery, unless so stated in the announcement, nor may it be credited in addition to Cookery 3 or 41.

Cookery 1 is a desirable parallel.

\*Cookery e3L — Principles of cookery. Lectures and laboratory work. Credit IV. 3 points. Special fee \$24. Not charged at \$6 per point. Miss Barrows and others

Section IX–X — 9–11.50 a.m., Saturday, Winter and Spring Sessions. Begins September 30

Section XI — 7–9.50 p.m., Tuesday and Thursday, Winter Session. Begins October 3

Limited sections. Each section requires ten students

The purpose of this course is to give a working knowledge of the general principles of cookery.

Required of all students in foods and cookery unless exemption be obtained by examination and by approval of laboratory note-book.

Prerequisite or parallel: General chemistry or physics and Cookery 1.

\*Cookery e5 — Cookery for social workers. Lectures and field work. Credit IV. 2 points. Fee \$12. Miss Gibbs

Section I — 2.10-3 p.m., Friday (lecture), Winter Session. Repeated as Section II — Spring Session

Hours for field work to be arranged. Each section requires ten students.

The purpose of this course is to provide instruction for those interested in social betterment work, in the conditions governing the food supply in the congested districts. Field work will be provided for mature students who are qualified to be assigned the oversight of a family and to give instruction in cookery in the home.

Prerequisites: Elementary chemistry and principles of cookery.

Parallel: Nutrition 1.

Recommended parallels: Physics 1 and Chemistry 25.

\*Cookery e41L — Home cookery and table service. Lectures and laboratory work. Credit IV. 4 points. Special fee \$32. Not charged at \$6 per point. Miss Peacock and Mrs. Gunn

Section VII-VIII — 9-11.50 a.m., Saturday, Winter and Spring Sessions. Begins September 30

Section X - 7-9.50 p.m., Tuesday and Thursday, Spring Session Limited sections. Each section requires ten students

The purpose of this course is to give opportunity for practice in home cookery. It will include the study, planning and cooking of breakfasts, luncheons, dinners and suppers; and various methods of preparation and garnishing. It is intended for students

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration, and written permission obtained.

who are planning to teach or to take charge of families where such work is required. It deals also with table service.

Prerequisite: Cookery 3.

Prerequisite or parallel: Cookery 1, Chemistry 25 and Biology 4. Nutrition 1 is strongly recommended as a parallel. Administration 21 is also recommended.

\* Cookery e61 - Demonstrations in advanced cookery. Credit IV. 3 points. Fee \$18. Miss Shapleigh

Section I — 9-11.50 a.m., Monday and Friday, Winter Session. Repeated as

Section II — Spring Session

This course is intended to acquaint the student with the more complicated processes of cookery, more elaborate utensils, and a greater variety of flavorings, seasonings and food materials.

Prerequisite or parallel: Cookery 1.

Prerequisite: Cookery 3 and (for students majoring in foods and cookery) 4, 41, or equivalents.

\* Cookery e71L - Brief course in cookery for invalids. Lectures and laboratory work. Credit IV. 1 point Winter Session, supplementary to another course in household arts. Miss Peacock

7.30-9.30 p.m., Wednesday. Fee \$6. Begins October 4 Limited class. Requires fifteen students

\* Cookery e75L — Institutional cookery. Lectures and laboratory work. Credit IV. 4 points Spring Session. Special fee \$32. Not charged at \$6 per point. Mrs. Manchester

Section IV - 7-9.50 p.m., Monday and Wednesday. Begins February 12 Limited class. Requires fifteen students

This course is designed to give practice in handling materials in large quantities for the large family or for small and large institutions, as hospitals, sanitaria, college dormitories, restaurants, etc. The course will include some practice in planning and serving of luncheons of varying costs to small groups as an introduction to larger work. The problem of minimum cost luncheons will be considered with reference to the demands of the cafeteria, the factory, and the school.

Prerequisites: Cookery 1, 3 and 41.

\* Household arts e132L - Experimental cookery. Lectures and laboratory work. Half course. 2 points Spring Session. Professor Van Arsdale Miss French and Miss Monroe

9-11.50 a.m., Saturday. Special fee \$16. Not charged at \$6 per point Limited class

This course furnishes an introduction to research work by affording an opportunity for quantitative experimental work in various problems in the field of cookery.

Prerequisite or parallel: Cookery 1.

Prerequisites: Cookery 3, and (for students majoring in foods and cookery) 4, 41, 61, 75, 81, 85. Chemistry 31 and 41 and Nutrition 71.

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration, and written permission obtained.

Cookery e90— History of cookery. Fifteen lectures. Credit IV. 1 point supplementary to another course in household arts. Fee \$6. Miss Shapleigh

Section I — 1.10-2 p.m., Friday, Winter Session. Repeated as

Section II - Spring Session

Begins September 29

Cookery e42L — Elementary cookery. No credit. Special fee \$30. Not charged at \$6 per point

Section I — 9–11.50 a.m., Tuesday and Thursday, Winter Session. Repeated as

Section II - Spring Session

Room 206 H. A.

Limited sections. Each section requires ten students

Cookery e44L — Laboratory course in advanced cookery. No credit. Special fee \$30. Not charged at \$6 per point. Mrs. Gunn

Section I -2.10-5 p.m., Tuesday and Thursday, Winter Session. Repeated as

Section II - Spring Session

Limited sections. Each section requires ten students

Prerequisite: Cookery e42 or equivalent.

Other and more advanced courses in Cookery, described in the Announcement of the School of Practical Arts, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor Van Arsdale.

### Nutrition and Food Economics

\* Nutrition e1 — Elementary food economics. Lectures, recitations and laboratory work. Credit IV. 2 points. Fee \$12. Miss McCormick and Professor Sherman

Section I — 9-11.50 a.m., Saturday, Winter Session. Repeated as

Section II - Spring Session

Rooms 400 Teachers College, and 401 H. A.

This is an elementary course designed for students who have not taken the science courses which are a prerequisite to Nutrition 71. It includes discussion of the functions and nutritive values of foods, the feeding of families and larger groups, with particular reference to nutritive requirements and the cost of food in relation to the family budget.

Prerequisites: An elementary knowledge of cookery equivalent to Cookery 3. Students who have not previously studied chemistry are strongly advised to take Chemistry 1 or 3A in the Winter Session as preparation for this course in the Spring Session.

<sup>•</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration, and written permission obtained.

Nutrition esp1—Elements of nutrition. Ten lectures with demonstrations. No credit. Special fee \$6. University fee not charged. Professor Rose and Miss McCormick

Section I — 11–11.50 a.m., Tuesday, Winter Session. Begins October 10 Section II — 4.10–5 p.m., Tuesday, Spring Session. Begins February 13 Requires fifteen students

This series of lectures will emphasize the practical bearing of the science of nutrition upon daily life.

## Textiles and Clothing

Limited sections: For all courses announced as "limited sections" students must reserve places at the time of registration. See p. 96.

\* Textiles e31a — Textiles. Lectures. Credit IV. 2 points. Fee \$12. Professor Fales

Section I — 10–10.50 a.m., Tuesday and Thursday, Winter Session. Repeated as

Section II - Spring Session

Room 130 Macy

This course considers the primitive form of the textile industries in order to make clear their later development; the present methods of carding, spinning and weaving; the modern growth, manufacture and finishing of cotton, wool, silk, linen and other important fibres, and their properties and values in relation to their manufacture. This course may be elected separately but is prerequisite to the other parts of the course.

\* Textiles e31b — Textile fabrics. Lectures and laboratory work. Credit IV. 1 point supplementary to other textile work. Fee \$6. Professor Fales

Section I — 10–11.50 a.m., Wednesday, Winter Session. Repeated as Section II — Spring Session

Section IV — 2.10-4 p.m., Tuesday, Spring Session (for students of house design and decoration)

Rooms 101 and 509 H. A.

This course concerns itself with the identification and grading of textile materials, their names, kinds, prices and widths; considers variation of weave in regard to beauty and strength; the use and value of cotton, silk, wool and linen for clothing and household furnishing; includes estimates and a family budget for clothing or house decoration. Prerequisite: Textiles 31a.

\* Textiles e31c — Textile chemistry. Laboratory work. Credit IV. 1 point supplementary to other textile or clothing work. Fee \$6. Mrs. McGowan

Section I — 2.10-4 p.m., Thursday, Winter Session. Repeated as Section II — Spring Session

<sup>\*</sup>A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration, and written permission obtained.

Section III — 10-11.50 a.m., Wednesday, Winter Session. Repeated as Section IV — Spring Session

Room 509 H. A.

This course considers (a) the identification of fibres and substitute material by means of the microscope; (b) the chemical examination of fibres including tests to determine content of cloth and adulteration, and proper use of materials in relation to cleansing and laundering; (c) lectures, and laboratory experiments in dyeing.

Prerequisites: Textiles 31a, Chemistry 3 or its equivalent.

Textile manufacturing — See under Industrial arts, p. 119.

\*Clothing e33 — History of costume. Lectures. Credit IV. 2 points. Fee \$12. Professor Fales

Section I — 11–11.50 a.m., Tuesday and Thursday, Winter Session. Repeated as

Section II - Spring Session

Room 130 Macy

This course includes a survey of ancient Egyptian, Grecian, early and modern French costumes. It aims to give practical information for the use of students and teachers of dressmaking, costume design and fashion illustration.

\*Clothing e5L — Elementary clothing and handwork. For teachers. Laboratory work. Credit IV. 4 points. Fee \$24. Miss White and Miss Evans Section V — 2.10-5 p.m., Monday and Friday, Winter Session. Repeated

Section VI — Spring Session

Section IX–X — 9–11.50 a.m., Saturday, Winter and Spring Sessions. Begins September 30

Limited sections. Each section requires ten students

This course includes practice in the following: the use of the sewing machine and its attachments; the making of fundamental stitches; the drafting and use of patterns; hand and machine sewing applied to simple garments; knitting, crocheting, darning, patching and simple embroidery.

Students provide required material.

This course, or its equivalent, is prerequisite to all dressmaking courses.

\* Clothing e15L — Drafting and dress design. For teachers. Laboratory work. Credit IV. 3 points. Fee \$18. Miss Baldt

Section I — 9-11.50 a.m., Tuesday and Thursday, Winter Session. Repeated as

Section II - Spring Session

Section IX-X — 9-11.50 a.m., Saturday, Winter and Spring Sessions. Begins September 30

Room 304 H. A.

Limited sections. Each section requires ten students

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. September 26 or February 6. The instructor must be consulted before registration, and written permission obtained.

This course gives practice in the making of patterns by drafting, modeling and designing. Foundation patterns of a shirtwaist, shirtwaist sleeve, skirt, fitted waist, fitted sleeve and kimono blouse are drafted to measure, in materials and fitted. From these other patterns are designed and modeled in paper, cambric and cheesecloth. Good design is emphasized.

Students provide required materials; approximate cost, \$5. This course is prerequisite to all other dressmaking courses.

\*Clothing e25L — Dress design, advanced. For teachers. Laboratory work. Credit IV. 3 points. Fee \$18. Miss Warner

Section II — 9-11.50 a.m., Tuesday and Thursday, Spring Session

Special Section IX-X — 9-11.50 a.m., Saturday, Winter and Spring Sessions. Begins September 30

Room 305 H. A.

Limited sections. Each section requires ten students

This course gives practical training in the application to costume of line, color harmony, dark and light, and texture. Historic costume is used as a source of inspiration for much of the work. Practice in using and adapting for different individuals and purposes designs from the current fashion magazines. All designing is done from patterns made in Clothing 15, and by modeling on the form to give practice in actual constructive design.

Students provide required materials; approximate cost, \$5.

Prerequisite: Clothing 15 and Fine arts 1; prerequisite or parallel: Clothing 33.

\* Clothing e35L — Dressmaking, elementary. For teachers. Laboratory work. Credit IV. 4 points. Fee \$24. Miss Baldt

Section I — 9–11.50 a.m., Monday and Friday, Winter Session. Repeated as

Section II — Spring Session

Room 304 H. A.

Limited sections

This course includes eight evening tailoring demonstrations, and the cutting and making of a simple wash dress, a tailored silk shirt, a wool skirt, a lingerie blouse and a net guimpe. Commercial patterns as well as those made and fitted in Clothing 15 are used. Students provide required material; approximate cost, \$25.

Prerequisites: Clothing 5, 15. Fine Arts 1.

\* Clothing e35a — Dressmaking, elementary. For teachers. Credit IV. 3 points. Fee \$18. Miss Baldt

9-11.50 a.m., Saturday, Winter and Spring Sessions

Begins September 30

Requires ten students

This course omits the tailoring work of Clothing 35.

\* Clothing e55L — Dressmaking, intermediate. For teachers. Laboratory work. Credit IV. 3 points. Winter Session. Fee \$18. Miss WARNER 2.10-5 p.m., Monday and Friday

Limited class

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. September 26 or February 6. The instructor must be consulted before registration, and written permission obtained.

This course includes the cutting and making of an unlined cloth dress and a lined silk dress. Order work is done by each student.

Students provide required material; approximate cost, \$25.

Prerequisites: Clothing 5, 15, 25, 33, 35. Fine Arts 1.

\*Clothing e65 — Embroidery. For teachers. Laboratory work. Credit IV. 3 points. Fee \$18. Miss White

2.10-5 p.m., Tuesday and Thursday, Spring Session

Room 301 H. A.

This course includes practice in various kinds of embroidery — French embroidery for underwear, lingerie waists and household linen; dress embroideries in white and colors and various specialized embroideries. Students provide materials subject to the approval of the instructor.

\* Clothing e27 — Millinery, elementary. For teachers. Laboratory work. Credit IV. 3 points. Fee \$18. Mrs. Tobey

Section V — 9-11.50 a.m., Monday and Friday, Winter Session. Repeated as

Section VI - Spring Session

Room 302 H. A.

This course includes practice in the making and covering of frames and in the preparation of trimmings, such as wiring bows, shirrings, puffings, milliners' folds. Students provide material subject to the approval of the instructor.

#### Courses for Home Workers

\*Clothing e1L — Sewing, elementary. Laboratory work. Fifteen three-hour sessions. No credit. Special fee \$12. Miss Evans

Section I — 9–11.50 a.m., Wednesday, Winter Session. Begins October 11. Repeated as

Section II — Spring Session. Begins February 14

Section III — 2.10-5 p.m., Wednesday, Winter Session. Begins October

Room 301 H. A.

Limited sections. Each section requires fourteen students

This course includes practice in hand and machine sewing and in the cutting, fitting and making of undergarments. Students provide required materials.

\*Clothing e31L — Dressmaking. Laboratory work. Twenty-three two-hour sessions. No credit. Fee \$12. Miss Warner and Miss Evans

Section I — 10–11.50 a.m., Monday and Friday, Winter Session. Begins October 9. Repeated as

Section II — Spring Session. Begins February 12

Section III — 10-11.50 a.m., Tuesday and Thursday, Winter Session. Begins October 7. Repeated as

Section IV - Spring Session. Begins February 13

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The head of the department (Professor Fales) must be consulted before registration, and written permission obtained.

Section V -2.10-4 p.m., Monday and Friday, Winter Session. Begins October 9. Repeated as

Section VI — Spring Session. Begins February 12

Room 312 H. A.

Limited sections. Each section requires fourteen students

This course includes the cutting, fitting and making from patterns of shirtwaists and unlined dresses in cotton, silk and wool. Students provide materials.

\* Clothing e71 — Dressmaking, advanced. Fifteen three-hour sessions. No credit. Fee \$12. Miss Warner

Section I — 2.10–5 p.m., Wednesday, Winter Session. Begins October 11. Repeated as

Section II — Spring Session. Begins February 14

Room 312 H. A.

Each section requires fourteen students

Students provide required materials.

\*Clothing e7 — Millinery, elementary. Laboratory work. Twenty-three two-hour sessions. No credit. Fee \$12, Mrs. Smith

Section I — 10-11.50 a.m., Monday and Friday, Winter Session. Begins October 9. Repeated as

Section II - Spring Session. Begins February 12

Section III — 2.10-4 p.m., Monday and Friday, Winter Session. Begins October 9. Repeated as

Section IV — Spring Session. Begins February 12

Section V — 10-11.50 a.m., Tuesday and Thursday, Winter Session. Begins October 10

Room 311 H. A.

Each section requires fourteen students

This course includes the making of frames in wire and willow; the covering of hats in silk, velvet, lace and straw; and demonstrations in trimming. Students provide materials.

\* Clothing e57 — Millinery, advanced. Laboratory work. Twenty-three two-hour sessions. No credit. Fee \$12. Mrs. SMITH

9–11.50 a.m., Tuesday and Thursday, Spring Session. Begins February 13. Room 311 H. A.

Requires fourteen students

Prerequisite: Clothing e7. Students provide required materials.

Other and more advanced courses in clothing, described in the Announcement of the School of Practical Arts may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor Fales.

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration and written permission obtained.

#### HOUSEHOLD ADMINISTRATION

\*Administration e1L — Housework. Discussions, observation and practical work. Credit IV. 2 points. Fee \$12. Miss Balderston and assistant

Section I — 2.10-5 p.m., Wednesday, Winter Session. Repeated as

Section II — Spring Session

Section III — 9-11.50 a.m., Friday, Winter Session. Repeated as

Section IV — Spring Session

Room 53 H. A.

Limited sections

This course treats of the kinds of service needed in various parts of the household and the systematic planning of the daily routine — care of kitchen and pantries; of dining-room, as to glass, silver, linen, flowers, etc.; of bedrooms, as to ventilation, bed-making, care of clothing; of bathrooms — ventilation, cleansing and care; tools and materials, as brooms, brushes, soaps and polishes; labor-saving appliances; repairing; use of tools of repair; floors, and woodwork — finishing, care, cleaning; application and removal of stains, paint, varnish, wax; floor coverings, rugs, carpets — care, cleaning and repair; furniture — cleaning and preservation; care and cleaning of metals, glass and marble.

Recommended preparatory or parallel: Biology 57 and Chemistry 31.

\*Administration e2 — Household management. Credit IV. 2 points. Fee \$12. Professor Gunther and Miss Balderston

Section I — 9-10.50 a.m., Monday, Winter Session. Repeated as

Section II — Spring Session

Room 237 Macy

A course for both housekeepers and teachers of the subject, applying scientific and economic principles to the problems of the modern housewife, and discussing, both from the ideal and the practical point of view, such topics as:

Income as determining the type of household; the budget and its apportionment;

Income as determining the type of household; the budget and its apportionment; application of scientific management principles to household; household efficiency; household service; apportionment of time; household accounts; home life.

Recommended parallel: Administration 1.

\*Administration e5 — Home management for the industrial family. Lectures and conferences, readings and investigation. Credit IV. 2 points. Fee \$12. Miss Winslow

Section I - 2.10-4 p.m., Tuesday, Winter Session. Repeated as

Section II — Spring Session

Requires twelve students

A course designed especially for visiting housekeepers in social work, and for public school teachers of domestic science and art. Discussion of detailed systems of household management practiced in the home of the industrial class; analysis of expenditures for food, clothing, shelter, and operating expenses, and social life actually made by various families of different nationalities; standards of family life to be developed; and methods of teaching women in their homes.

- \*Administration e11L Domestic laundering. Discussions, demonstrations and laboratory work. Credit IV. 2 points. Fee \$12. Miss BALDERSTON and assistant
- \* A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration, and written permission obtained.

Section I — 2.10-5 p.m., Monday, Winter Session. Repeated as

Section II — Spring Session, if there is a registration of twelve students

Section III — 9-11.50 a.m., Wednesday, Winter Session. Repeated as

Section IV — Spring Session

Rooms 53 and 57 H. A.

Limited sections

Intended for the teacher or for the person concerned with household management. It presents the principles and processes included in laundry work; space, equipment, and materials required for work in the home; machinery for domestic work, its cost, care and uses; the processes of laundering; sorting, soaking, removal of stains, disinfecting; methods of handling cotton, linen, woolen, silk; special precautions with colored materials; rinsing, bluing, wringing, drying, starching, dampening, folding, ironing, mangling, rough drying; care of fine work, embroidery, laces; system in the domestic laundry; the household and the commercial laundry.

Recommended preparatory: Chemistry 3A.

\* Administration e21 — Marketing. Credit IV. 2 points. Fee \$12. Miss Winslow

Section I — 10–11.50 a.m., Wednesday, Winter Session. Repeated as Section II — Spring Session

This course deals with the problems of purchasing household and food supplies. It discusses methods of buying, quality, quantity, and tests; ordinary food supplies, and discusses the sources of supply, season and prices.

\*P. A. Physics e31 — Physical science in the household. Credit IV. 2 points Winter Session. Professor Woodhull

2.10-4 p.m., Thursday, Room 411 T. C. Fee \$12

The purpose of this course is to teach how to use and care for the equipment of homes and institutions, with particular reference to sanitary aspects. It will show how modern appliances may be either nuisances or sources of comfort, according as one can or cannot make intelligent use of them. The course will deal with water supply, plumbing, sewers, heating, ventilation, refrigeration, gas supply, stoves, lamps, electric lighting, cooking and heating, telephone, elevators and dumb-waiters, machinery for dishwashing, laundry, and cleaning, fire extinguishers, and general repairs.

\* Household economics e79 — Economic science applied to the household. Credit IV. 2 points. Fee \$12. Professor Andrews

Section I — 3.10-4 p.m., Tuesday and Thursday, Winter Session. Repeated as

Section II — Spring Session

Section III — 4.10-5 p.m., Monday and Wednesday, Winter Session. Repeated as

Section IV — Spring Session

Sections I and II give special emphasis to the budgets of industrial and rural families. Sections III and IV give special attention to family budgets from \$1,500 up.

Deals with the organization and control of family and personal life through the economic relations of the household. The family income and its expenditure, including the following topics; the income, its source, and the equivalent of income in productive labor within the household; family expenditures and their regulation; the budget system;

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration and written permission obtained.

the items of the budget as measures of standards of living; necessaries for efficient living—shelter, food, clothing, and personal life; house ownership versus rental; house maintenance, furnishings, and equipment; operating expenses and the cost of cleanness; the cost of food and clothing; the personal life as reflected in personal expenditure; thrift; methods of saving, as savings banks, investments and insurance—life, accident, and fire.

\* Household economics e81 — Household accounts. Credit IV. 2 points Spring Session. Professor Andrews

2.10-4 p.m., Friday. Fee \$12

Gives special attention to household accounts, for the teacher, house manager, and consultant.

\* Administration esp1 — Housework. No credit. Miss Balderston and assistant

2.10-4 p.m., Tuesday

Special fee \$10. University fee not charged

Twelve sessions; begins October 3

This course deals with the scientific technique of housework. Lectures and laboratory work.

Administration esp2 — House management. No credit. Ten lessons. Miss Balderston

Special fee \$5. University fee not charged

Section I — 10-11.50 a.m., Tuesday, Winter Session. Repeated as Section II — Spring Session

A course for housekeepers applying scientific and economic principles to the problems of the modern household, and discussing both from the ideal and the practical point of view, such topics as: The budget and its apportionment; application of scientific management principles to household; household efficiency; standardizing household service; apportionment of time.

Other and more advanced courses in administration, described in the *Announcement of the School of Practical Arts*, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor Gunther.

#### INDUSTRIAL ARTS

#### Industrial Arts for Teachers

Students who take shopwork in Industrial Arts will be required to purchase from the Bursar of Teachers College a "laboratory ticket," price \$2, the coupons of which are to be used in paying for special materials required for individual use and for damage to or loss of apparatus in any shops, laboratories, or studios of Teachers College. Unused coupons are redeemable at the end of any Session.

\*Industrial arts e47-48 — Woodworking and metalworking industries. Credit IV. 3 points each Session. Mr. Bowman

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration and written permission obtained.

3.10-5 p.m., Monday, Wednesday and Friday, Room 31 Macy. Fee \$18 each Session

This course includes problems and projects appropriate for the upper grades and high school or the junior high school in: Woodworking, forging, founding, machine shopwork, tinsmithing and other sheet metal work, plumbing and steam fitting, machine mechanisms and applications of power in industry.

\* Industrial arts e47a-48a — Woodworking and metalworking industries. Credit IV. 3 points for the entire course. Mr. Bowman

9-11.50 a.m., Saturday, Room 31 Macy. Fee \$9 each Session Thirty sessions. Begins September 30

- \*Industrial arts e49 Printing, publishing and photography. Credit IV. 2 points Winter Session. Mr. Bowman
  - 2.10-4 p.m., Tuesday and Thursday, Room 31 Macy. Fee \$12

This course includes principles and practice in composition, imposition, proof-reading and correcting, the making up of forms, and press work; design in its application to printing problems; commercial methods in printing and publishing; the printing and binding of books; illustration and color work in printing the elements of photography, including a study of the camera, developing, printing and mounting, and methods used in all forms of printed illustrations from photographs.

- \* Industrial arts e51 Concrete construction, clay products, masonry and painting. Credit IV. 2 points Spring Session. Mr. BOWMAN
  - 2.10-4 p.m., Tuesday and Thursday, Room 31 Macy. Fee \$12

In this course the problems are centred largely about the household — its construction, decoration, upkeep, and surroundings. It includes the following parts:

Problems in plain and reinforced concrete, such as walks, floors, tanks, concrete furniture, fence posts, culverts, draining tiles, etc.; a study of cements, aggregates, methods of measuring and mixing, tools required, and appropriate projects for city village and rural communities.

Simple problems in plastering and in brick-laying which equip for repair work and small projects; a study of the mixing and applying of mortars; of the different kinds of bonds used, of the various kinds of masonry construction including brick, tile and stone; a study of the commercial production of building materials and of the construction of large masonry structures — buildings, bridges, tunnels and other forms.

A study of painting, including the sources and kinds of paints, oils, stains and varnishes, methods of mixing and application, kinds appropriate for various purposes, care of painted

surfaces and repair work in painting.

#### Art Industries

For courses in woodcarving, hammered metal, silversmithing, jewelry, and color printing, see under Fine Arts.

#### Industrial Arts Education

\* Education e143-144 — Industrial arts for the elementary grades. Credit IV. 2 points each Session. Fee \$12 each Session. Miss Patrick Section I — 2.10-4 p.m., Monday and Wednesday

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration and written permission obtained.

Section III — 3.10-5 p.m., Tuesday and Thursday Section IV — 9-12.20 a.m., Saturday

This course deals with those typical forms of industrial arts work which are practical

in the first six grades of the elementary school.

It aims to secure a method of instruction that will emphasize thinking about concrete objects with relation to industrial uses; the projects include simpler phases of weaving, sewing, clay-working, cookery, wood-, metal-, and paper-working. The application of design to these projects is cared for. The relations of nature-study, geography, history, art, literature and arithmetic to the course are considered.

Education e145-146 — Teaching industrial arts in elementary schools. Credit IV. 2 points each Session. Professor Bonser

3.10-4 p.m., Tuesday and Thursday. Fee \$12 each Session

The place of industrial arts in the elementary school; distinction between elementary industrial arts and secondary or vocational study of the industries; materials and processes in the transformation of foods, textiles, metals, wood, and other products which may be used in elementary school practice; the extent to which the development of skill should be expected in the elementary school; the relation of the industrial arts to the fine arts, to nature-study, geography, arithmetic, and to the other elementary school subjects; organization of courses of study; methods of study and presentation in the industrial arts; supervision of instruction in industrial arts in elementary schools.

The technical projects covered in this course are taught in Education 143-144, which

should also be elected.

Prerequisite: Education A or 19-20 or 255-256; prerequisite or parallel: Education B or 241-242 or 291, 292, 293, 294.

Other and more advanced courses in Industrial arts, described in the Announcement of the School of Practical Arts, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to the instructor.

#### Mathematics

\*P. A. Mathematics e31-32 — Industrial mathematics. Credit IV. 2 points each Session. Mr. Breckenridge

5.10-6 p.m., Tuesday and Thursday. Fee \$12 each Session

This course is designed especially for teachers of mathematics or mechanic arts in technical or trade schools, but it is also useful for teachers in academic schools who wish

to vitalize the teaching of mathematics by the use of practical problems.

Practical problems are selected according to the needs of the student; the mathematics of woodworking; rough lumber; general construction; forestry methods in heights of trees; house building; power transmission; pulleys, belts, and speeds; pattern-making and foundry work; metalworking; cutting speed and feed; tapers; thread proportions gearing for screw cutting; indexing; gear proportions and spirals.

Prerequisite: College entrance mathematics or an equivalent experience in mechanic

arts.

#### Textile Manufacturing

Textiles esp81 — Woolens and worsteds. A course of twelve lectures, special fee \$10, will probably begin in November. A special circular will be issued in October

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration and written permission obtained.

Textiles esp82 — Silks, ribbons and pile fabrics. No credit. Lectures and demonstrations. Mr. Chittick

8-10 p.m., Monday. Special fee \$10. University fee not charged Twelve lessons. Begins October 16. Requires twenty-five students. Repeated beginning February 12

The following topics will be discussed: Silk-worm rearing; silk reeling; raw and spun silk; counts and numbering; silk conditioning; silk throwing; dyeing; fabrication of goods; designing; standard market fabrics; imperfections; finishing; printing; ribbons; pile fabrics; sewing threads; cost calculation; management and financing; merchandizing.

A special circular giving details concerning this course may be obtained from the Secretary of Teachers College.

Textiles esp83 — Cottons and cotton mixtures. No credit. Lectures and demonstrations. Mr. Hinchey

8-10 p.m., Thursday. Special fee \$10. University fee not charged Twelve lessons. Begins October 26. Requires twenty-five students

Intended for salesmen, buyers and consumers of cotton fabrics. The following topics will be discussed: Meaning of cotton industry; production of raw cotton; marketing; mill; first steps in manufacturing; carding and combing; draw frames and fly frames; spinning; yarns; weaving; designing; fabric analysis; cotton cloth; identification of cotton, textile chemistry; the market.

A special circular concerning this course may be obtained from the Secretary of Teachers College.

#### Industrial Chemistry

Industries esp24 — Chemistry of food industries. Lectures and laboratory demonstrations. No credit. Mr. Platt

8–10 p.m., Tuesday. Special fee \$10. University fee not charged Twelve lessons. Begins October 24. Requires twenty-five students

A special circular concerning the course may be obtained from the Secretary of Teachers College.

#### MUSIC

#### General Art of Music

- \* P. A. Music e25-26 Sight singing. Credit IV. 2 points each Session. Mr. Kraft
- 3.10-4 p.m., Monday, Wednesday and Friday, Room 118 T. C. Fee \$12 each Session

This course develops speed in determining what the notation means and skill in its vocal production. The aim of the work is to provide the general student with the fundamental work necessary for all forms of musical activity and to serve as an introductory course to professional students who are unable to do the work required in Music 13-14—Tone thinking.

\* P. A. Music e13-14 — Tone thinking. Music dictation and reading, including harmonic and melodic material. Credit IV. 2 points each Session. Mr. Kraft

<sup>\*</sup>A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration and written permission obtained.

4.10-5 p.m., Monday, Wednesday and Friday, Room 118 T. C. Fee \$12 each Session

This course is basic for all singers, players, and music teachers. It gives practice in describing, in writing and orally, what is heard in music, and includes singing at sight. Prerequisite: Either Music 25-26 or the ability to write from hearing a simple phrase of music.

\* P. A. Music e42 — Musical literature. Credit IV. 2 points Spring Session. Professor Farnsworth

3.10-4 p.m., Tuesday and Thursday, Room 502 Horace Mann School. Fee \$12

The aim of this course is to aid in forming a standard of taste in music by utilizing the unusual musical opportunities that the city affords. The work consists of musical illustrations, with discussions in reference to modes of interpretation.

\*P. A. Music e65-66 — Chorus singing and conducting. Credit IV. 2 points each Session. Mr. Kraft

11-11.50 a.m., Tuesday and Thursday, Room 118 T. C. Fee \$12 each Session

(a) Discussion of the means employed by the conductor in the interpretation of a composition; preparation of typical programs, giving reasons for choice and order of compositions; review of material suitable for school choruses; the organization of instrumental music in schools and the arrangement of parts for best effect under given conditions.

(b) Practice in chorus singing and conducting by members of the class.

#### Technical Music Courses

\*P. A. Music e15-16 — Voice: First year. Individual work in groups limited to four. Credit IV. 2 points each Session. Special fee for Sections II and III, \$25 for each Session. Not charged at \$6 per point

Section II — Room 605 H. A. Miss Daschbach

In this section special groups are formed for kindergartners, practice being given in the music they are required to use. Hours to be arranged

Section III — Room 605 H. A. Hours to be arranged. Mr. Jolliffe

- \*P. A. Music e35-36, e55-56, e75-76 Advanced courses in voice. Hours to be arranged. Given in groups; under same conditions as to credit, hours and fees as for the same instructors in Music e15-16. Consult Professor Farnsworth
- \*P. A. Music e17-18 Piano music for school exercises. Credit IV. 2 points each Session. Special fee, \$25 for each Session. Not charged at \$6 per point. Miss Macdonald

Individual work in groups limited to four Hours to be arranged. Room 118 T. C.

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration and written permission obtained.

- \* P. A. Music e27-28 Piano: First year. Credit IV. 2 points each Session. Requires at least six hours' practice a week. Fee same as in Music 17-18. Miss Zerbe and Miss Macdonald
  - (a) Individual work in groups limited to four. Once a week

The work presents the technique of playing, sight-reading, accompanying and drill in methods for concentration and practice, requiring, as a result, the ability to play at least a dozen pieces from memory.

(b) Class lessons: once a week, combining all groups

4.10-5 p.m., Tuesday, and other hours to be arranged with the instructor, Miss Zerbe

Room 118 T. C.

The work includes ear training, interpretation, with examples by both students and instructor. Analyses and estimates are made of a large number of pieces.

\* P. A. Music e37-38, e57-58, e67-68 — Advanced courses in piano. Hours to be arranged. Given in groups; under same conditions as to credit, hours and fees as for the same instructors in Music 17-18. Consult Professor Farnsworth

Piano practice — Fee for use of pianos by students registered for eight or more points in a Session is \$4 per Session for six hours or less per week. Arrange hours at the office of Practical Arts

\*P. A. Music e19-20 — Organ: First year. Credit IV. 2 points each Session. Special fee, \$50 for each Session. Not charged at \$6 per point. Mr. LAMOND

Individual work in groups. Requires three students to form a group; limited to four. Hours to be arranged

Manuals, pedals, technical studies, Bach's Eight Short Preludes and Fugues. Albrechtberger's Trios.

Prerequisite: Elementary piano-playing.

\* P. A. Music e 29-30 — Organ: Second year. Fee, credit, hours and groups as in Music e19-20

Organ practice — Fee for use of pipe-organ is 25 cents per hour for not less than twenty hours in a Session. Arrange hours at office of Practical Arts

\* P. A. Music e39-40 — Violin: First year. Credit IV. 2 points each Session. Special fee, \$35 for each Session. Not charged at \$6 per point. Mr. Stowell

Hours to be arranged. Room 603 H. A.

Individual work in groups limited to four. Requires three students to form a group

The work in this course includes a good position for scales in all keys, bowing, exercises, studies, solos, and special work of the development of good tone, together with ensemble and sight-reading classes.

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration and written permission obtained.

\*P. A. Music e49-50 — Violin: Second year. Fee, credit, hours and groups as in Music e39-40

#### Music Teaching

\*Education e81 — Vocal and instrumental music for kindergarten, advanced. Lectures and discussions. Credit IV. 2 points Winter Session. Mr. Cady

1.10-2 p.m., Tuesday and Thursday. Fee \$12

\*Education e83 — Theory and practice of music education for elementary and advanced students of piano. Lectures and discussions. Credit IV. 4 points Winter Session. Mr. Cady

Hours to be arranged. Fee \$24

\*Education e85 — Theory and practice of music education for advanced students. Lectures, observations and practice work. Credit IV. 3 points Winter Session. Mr. Cady

Hours to be arranged. Fee \$24

Education e181-182 — School and community festivals. See under Physical Education

Education e181x-182x — Practical work supplementary to Education e181-182. See under Physical Education

Other and more advanced courses in music for teachers, described in the *Announcement of the School of Practical Arts*, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor Farnsworth.

#### Speech

Speech e1A — Voice and diction, introductory. Lectures, class exercises and individual practice. Credit IV. 2 points Spring Session. Fee \$12. Professor LATHAM and assistant

Section I - 10-10.50 a.m., Monday and Wednesday

Section II - 10-10.50 a.m., Tuesday and Thursday

Section III - 9-11 a.m., Saturday

(1) Breathing, carrying tone, distinct utterance; correction of individual faults—nasality, throatiness, etc.; a practical study of phonetics leading to standard pronunciation of English and to a working knowledge of the facts of speech necessary for teaching speech sounds.

(2) A study of the elements of vocal expression — pitch, inflection, time, etc.; practice in speaking with notes and without notes; effective use of the voice in teaching, with

practice in the oral conduct of various school exercises.

<sup>\*</sup>A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after \$\epsilon\$ p.m. on September 26 or February 6. The instructor must be consulted before registration and written permission obtained.

Speech e3A — Story-telling and reading, introductory. Lectures, practice, criticism and recitals. Credit IV. 2 points Spring Session. Fee \$12. Professor Latham

Section I - 11-11.50 a.m., Monday and Wednesday

Section II - 11 a.m.-1 p.m., Saturday

This is an elementary course in story-telling and reading as fine arts. It is planned to meet the needs of students intending to use these arts in the home, the school, the playground and social clubs.

#### NURSING AND HEALTH

\* Nursing e3 — Physical care of infants and small children. Lectures, demonstrations and readings. Credit IV. 2 points. Fee \$12. Dr. Kenyon Section I — 3.10-5 p.m., Monday, Winter Session. Repeated as

Section II - Spring Session

Requires fifteen students

Presents the theory and practice of the care of infants and small children in a series of lectures and demonstrations. The following topics will be treated: the basis in physiological knowledge for the rational care of the child, the physical care of the infant and child, presenting in turn such topics as the daily régime of the infant, food, sleep, bathing, clothing; the child, from the third to the sixth year, nursery, clothing, food.

\* Nursing e5 — Elementary home nursing and first aid. Lectures, demonstrations and laboratory practice. Credit IV. 2 points. Fee \$12. Miss Strong

Section I - 2.10-5 p.m., Thursday, Winter Session. Repeated as

Section II — Spring Session

Section III - 2.10-5 p.m., Friday, Winter Session. Repeated as

Section IV - Spring Session

Instruction in domestic emergencies and first aid, and in simple procedures in the home care of the sick. It includes such topics as the treating of bleeding, wounds, fractures, sprains, fainting, convulsions, shock, asphyxiation and poisoning, caring for the sick when the professional services of a nurse are not required, including care in colds and other slight indispositions; care of children and aged; simple sick-room procedures and food for the sick.

\* Nursing e7 — Occupations for invalids. Lectures and laboratory work. Credit IV. 2 points Spring Session. Miss Collins

3.10-6 p.m., Wednesday. Fee \$12

Requires fifteen students

Deals with occupations — handwork, plays, games, etc., as a method of treatment in illnesses of various kinds. It discusses the psychological, social and economic bearings of the subject, the relation of the patients' mental and physical limitations to kinds of occupation prescribed, and wage-earning possibilities in occupational work in private homes or institutions. Certain projects will be worked out in paper, textile, clay, wood, metal and other materials.

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration and written permission obtained.

Biology e4x — Biology for sex-education. 1 point Spring Session, when taken parallel with any course in hygiene or biology. Open only to women. Miss STACKPOLE

5.10-6 p.m., Monday, Room 421 T. C. Fee \$6

A series of fifteen illustrated lectures and laboratory demonstrations dealing with the anatomical, physiological, embryological and bacteriological facts of biology which are necessary for understanding sex-education.

\* Nursing e44 — Medical inspection and school nursing. Credit IV. 2 points Spring Session. Dr. Baker

4.10-5 p.m., Friday. Fee \$12

Fourteen lessons. Begins February 9

This course designed for graduate nurses deals with school nursing in its relation to public health and the education of the child. It deals with the supervision of the child in school, and in the home when excluded from the school, the relationship between the school and the home, and the instruction of mothers and of children. The preventive aspects of carefully organized school work, the technique of school nursing, reports, statistics, equipment and appliances, etc., are considered in detail.

Open only to properly qualified graduate nurses.

\* Nursing e45 — Prevention and control of communicable disease. Credit IV. 2 points Winter Session. Dr. NICOLL

3.10-5 p.m., Wednesday. Fee \$12

Fourteen lessons. Begins October 11

This course, designed for graduate nurses in public health and in training school work, deals with the methods of application by nurses of modern scientific medical knowledge in the prevention of diseases. It considers the causes of prevalent communicable disease, such as, tuberculosis, typhoid fever, searlet fever, diphtheria, and the venereal diseases, and discusses the available measures for their prevention, control and care.

Open only to properly qualified graduate nurses.

\* Nursing e82 — Supervision in hospitals and training schools. Lectures and conferences. Credit IV. 2 points Spring Session. Professor Goodrich 8.15-9.30 p.m., Tuesday. Fee \$12

Fourteen lessons. Begins February 13. Requires twelve students

A course designed for teachers and supervisors who require a general knowledge of organization and administration in hospitals and training schools. It deals with the relation of departments to each other, and with the ordinary problems of management and supervision; with the arrangement of practical training of student nurses, the proper coördination of theory and practice, and the preparation of records and reports.

Nursing esp1 — Care of small children. No credit. Dr. Kenyon 11-11.50 a.m., Friday. Special fee \$5. University fee not charged Ten lessons. Begins November 10. Requires fifteen students

A popular lecture and demonstration course dealing with the same topics as Nursing e3 described above.

Nursing esp21 — Social and ethical aspects of nursing. No credit. Miss Stewart and Miss Strong

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration and written permission obtained.

8.15-9.30 p.m., Monday. Special fee \$6. University fee not charged Ten lessons. Begins October 9. Requires twelve students

This is a short course dealing with the history and traditions of nursing as the basis for the development of its chical and social relationships.

Open only to properly qualified graduate nurses.

Nursing esp85 — Modern trend in nursing education. Lectures. No credit. Professor Goodrich

8.15-9.30 p.m., Monday. Special fee \$6. University fee not charged Ten lessons. Begins February 12. Requires twelve students

This course presents the practical present-day problems arising in the management of Hospital Training Schools. It deals with their relation to the general field of education, shows how they are affected by modern social and public health movements and outlines probable developments in training school work to meet these new conditions.

Open only to properly qualified graduate nurses.

Other and more advanced courses in nursing and health, described in the Announcement of the School of Practical Arts, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor Nutting.

#### PHYSICAL EDUCATION

The following extension courses are given in the Thompson Building of Teachers College October 1, 1916 to May 15, 1917

Lockers are available for women only. A deposit of twenty-five cents must be made for each locker key. This must be redeemed and gymnasium suits removed before June 6

The swimming pool is reserved for women and children

Gynmasium shoes must be soft-soled and without heels

For information concerning gymnasium and swimming suits consult the Secretary of the Department of Physical Education

\* Hygiene e72 — Personal and general hygiene. Lectures, recitations, and required readings. Credit IV. 2 points. Fee \$12. Professor Keyes 11 a.m., Wednesday and Friday, Spring Session

This course is intended for advanced students and is not open to those who are required to take Hygiene A as Freshmen. It will consider the principles of hygiene, both personal and general, and their practical application to every day life.

Physical education esp1—Gymnastics for women. No credit. Two one-hour lessons each week (except during college vacation), from October 8 to May 15

10-10.50 a.m., Monday and Friday. Special fee \$14 for each Session (from October 8 to January 30 or from February 1 to May 15). University fee not charged

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration, and written permission obtained.

The work of this course will be arranged with reference to the needs of the individual as indicated by a physical examination and a study of personal tendencies. The hygienic, corrective, and educative effects of exercise will be sought in the arrangement of movements. The exercises include those with and without apparatus; gymnastic drills and games.

Physical education esp2 — Dancing for women. No credit. Miss Yunck Two one-hour lessons each week (except during college vacation), from October 17 to May 15

10-10.50 a.m., Wednesday and Friday. Special fee \$14 for each Session (from October 17 to February 1 or from February 1 to May 15). University fee not charged

This course will provide instruction in gymnastic and folk dancing for those who prefer this form of exercise to the regular gymnastics and games. The dances will be varied, with the idea of gaining, by complete bodily activity, the beneficial effects which are sought in other forms of general exercise.

Physical education esp4 — Swimming for women and young boys. No credit. Mr. Holm

Special fee for esp4, sixteen consecutive lessons of one half-hour each, \$20; for esp 4a, eight consecutive lessons, one half-hour each \$14

Open to women and girls, and boys under 13 years of age. Beginning October 1, sections will be formed for certain half-hours between 9.30 and 12 every morning; between 3 and 4.30 every afternoon except Saturday. Not less than two and not more than four students will be assigned to one instructor for one half-hour. Students are permitted to use the pool two half-hours a week, at stated hours, from the time the instruction ends to the end of the Session

Physical education esp5 — Corrective gymnastics. No eredit. Miss Drew

Special fee \$20, eight lessons (two lessons a week for one month). Students may register for additional lessons at the rate of \$10 for four lessons. University fee not charged

Open to women and girls, and boys under 13 years of age. Two or more lessons weekly. Hours by appointment. Daily from 9 a.m. to 4.30 p.m.

Physical education esp6 - Dancing for children. No credit

Special fee \$15. University fee not charged

The following hours are offered beginning November 1:

4-4.50 p.m., Monday, Children's elementary folk dancing

4-4.50 p.m., Wednesday, Children's advanced social dancing

4-4.50 p.m., Friday, Children's elementary social dancing

Twenty lessons, one lesson weekly, one hour each

Physical education  $\exp 7$  — Folk and aesthetic dancing for adults. No credit.

Special fee \$15. University fee not charged

Twenty one-hour lessons

10-10.50 a.m., Saturday, beginning October 14

Special classes in gymnastics will be organized, if there is sufficient demand for such instruction. Arrangements may be made by applying in person or by letter to the Secretary of the Department of Physical Education.

Physical education esp9 — Exercise without regular instruction. No credit Special fee \$9 each Session. University fee not charged

Women and girls may use, at stated hours and under supervision, the swimming pool twice a week, and the bowling alleys and the hand-ball courts

Physical education esp9a — The equivalent of one-half of Physical Education esp9 for one Session

Special fee \$4.50. University fee not charged

Physical education esp11 — Evening classes in dancing, gymnastics and swimming. No credit. Open to women

Special fee \$10 for twenty-four evenings. University fee not charged 7.30–10 p.m., Tuesday and Thursday
Section I begins Tuesday, October 3
Section II begins Tuesday, February 13

Physical education esp11a — Tuesday or Thursday evening each week of Physical education esp11, see above

Special fee \$5. University fee not charged

- \* Physical education e1-2 Elementary practice for women. Credit IV. 2 points for the entire course. Miss March
- 4.10-5 p.m., Tuesday and Thursday, Room 255 Thompson. Fee \$6 each Session

The work of this course is arranged with reference to the needs of those who wish to secure material for teaching simple gymnasium exercises, games and dances, such as are suitable for classroom or playground. The exercises include those with and without apparatus; gymnastic drills, games, swimming and elementary dancing.

\*Physical education e3-4 — Advanced practice for women. Credit IV. 2 points for the entire course. Fee \$6 each Session. Miss Yunck

3.10-4 p.m., Wednesday and Friday

This course is arranged to give practice in dancing to students who have already had two years' college training or its equivalent.

\*Physical education e77-78 — The dramatic game. Practice. Credit IV. 2 points for the entire course. Miss Colby

5.10-6 p.m., Tuesday and Thursday, Thompson Gymnasium. Fee \$6 each Session

This course presents the earliest forms of the dramatic game. Studies are made of children's games from all parts of the world, and of the simplest dances and dramas of primitive people and of the folk of Europe.

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 4 p.m. on September 26 or February 6. The instructor must be consulted before registration, and written permission obtained.

Education e181-182 — School and community festivals. Lectures, discussions, and reference reading. 2 points. Professors Abborr, Wood, Farnsworth, Latham, Warner, and others

9-9.50 a.m., Saturday, Winter and Spring Sessions. Fee \$6 each Session

This course deals with the history and general principles of the dramatic festival. It is recommended that the following practical work be taken in connection with the lectures.

Education e181x-182x — Practical work supplementary to the above course. 1 point each Session for work in two of the sections described below. Fee \$6 each Session

Each section requires fifteen students

Students in the several sections of this course will be given an opportunity to share in the direction of the Teachers College festival during the Winter Session, and in the Spring Session will be expected to take up individual projects in festival making.

Section I — Dramatic action and the dance. Floor-work in pantomime, folk and interpretive dancing, etc.

10 a.m., Saturday, Winter and Spring Sessions

Section II — Allied arts of the festival. Writing, speech, music, dance, staging, costume, poster design, printing. Qualified students will be afforded opportunity to do additional work in these arts

10 a.m., Saturday, Winter and Spring Sessions Section III — Festival organization and administration 11 a.m., Saturday, Winter and Spring Sessions

Other courses in physical education, with numbers below 100, described in the *Announcement of the School of Practical Arts*, may be made available for specially qualified non-matriculated students who bring to the Director of the School of Practical Arts the written approval of Professor Wood.

#### ACADEMIC CALENDAR

- 1916 June 19 Monday. Entrance examinations begin.
  - July 10 Wednesday. Seventeenth Summer Session opens.
  - Aug. 18 Tuesday. Seventeenth Summer Session closes.
  - Sept. 11 Monday. Last day for filing applications for entrance and deficiency examinations and advanced standing. The privilege of later application may be granted on payment of a fee of \$5.
  - Sept. 18 Monday. Examinations for entrance, advanced standing, and for deficient and debarred students begin.
  - Sept. 20 Wednesday. Registration (including the payment of fees) begins.
  - Sept. 26 Tuesday. Registration ceases for students previously matriculated. The privilege of later registration may be granted on payment of a fee of \$5.
  - Sept. 27 Wednesday. Winter Session, 163d year begins.
  - Sept. 28 Thursday. Extension Teaching courses begin.
  - Oct. 7 Saturday. Last day for changes in registration and for filing applications for all Bachelor's degrees to be conferred in October.
  - Nov. 7 Tuesday. Election Day, holiday.
  - Nov. 29 Wednesday. Annual Thanksgiving Service in St. Paul's Chapel.
  - Nov. 30 Thursday to December 2, Saturday, inclusive, Thanksgiving holidays.
  - Dec. 10 Sunday. Annual Commemoration Service in St. Paul's Chapel.
  - Dec. 20 Wednesday, to
- 1917 Jan. 2 Tuesday, inclusive, Christmas holidays.
  - Jan. 11 Thursday. Last day for filing applications for entrance examinations. The privilege of later application may be granted on payment of a fee of \$5.
  - Jan. 18 Thursday. Mid-year entrance examinations begin.
  - Jan. 29 Monday. Examinations (Extension Teaching) begin.
  - Jan. 29 Monday. Mid-year examinations in Practical Optics begin.
  - Feb. 1 Registration for Spring Session begins.
  - Feb. 6 Tuesday. Winter Session ends.
  - Feb. 7 Wednesday. Spring Session begins. (University Service in St. Paul's Chapel.)
  - Feb. 8 Thursday. Last day for filing applications for all Bachelor's degrees to be conferred in February.
  - Feb. 12 Monday. Alumni Day.

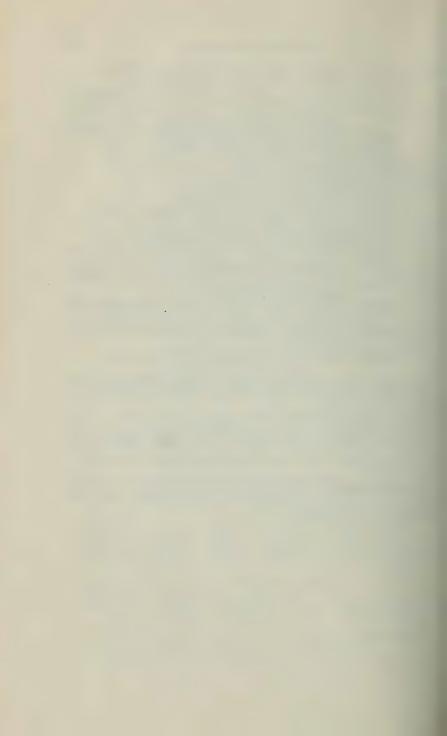
- 1917 Feb. 17 Saturday. Last day for changes in registration.
  - Feb. 22 Thursday. Washington's Birthday, holiday.
  - Apr. 5 Thursday to April 9, Monday, inclusive, Easter holidays.
  - Apr. 18 Wednesday. Last day for filing applications for Bachelor's degrees to be conferred in June.
  - May 21 Monday. Final examinations (Extension Teaching) begin.
  - May 30 Wednesday. Memorial Day, holiday.
  - June 3 Sunday. Baccalaureate Service.
  - June 4 Monday. Class Day.
  - June 6 Wednesday. Commencement Day.
  - June 13 Wednesday. Spring Session ends.

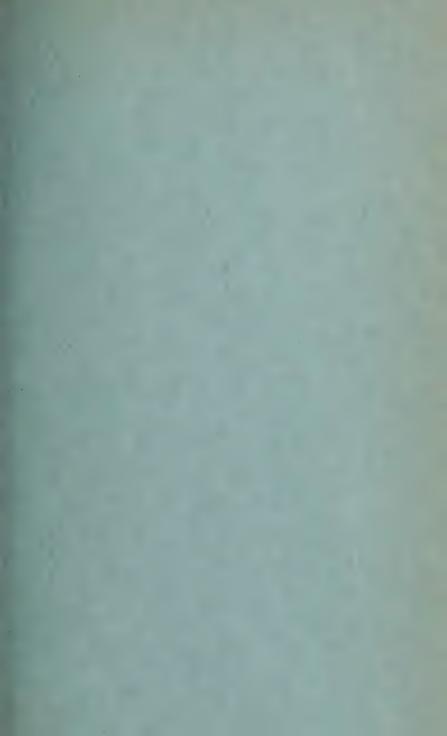
  - June 18 Monday. Entrance examinations begin.
     July 9 Monday. Eighteenth Summer Session opens.
  - Aug. 17 Friday. Eighteenth Summer Session closes.
  - Sept. 10 Monday. Last day for filing applications for entrance and deficiency examinations and for advanced standing. The privilege of later application may be granted on payment of a fee of \$5.
  - Sept. 17 Monday. Examinations for entrance, advanced standing. and for deficient and debarred students begin.
  - Sept. 19 Wednesday. Registration (including the payment of fees begins).
  - Sept. 26 Wednesday. Winter Session, 164th year, begins.

The academic year is thirty-seven weeks in length, ending on the second Wednesday in June although the actual class work is uniformly assigned to fifteen weeks each Session.

The exercises of the University are suspended on Election Day, Thanksgiving Day and the two following days, for two weeks at Christmas (December 20, 1916, to January 2, 1917, inclusive), on Washington's Birthday, from the Thursday before Good Friday through the following Monday, and on Memorial Day.

The complete academic calendar will be found in the University Catalogue and, so far as it refers to the students studying under any faculty, in the announcement of that faculty.









# Columbia University Bulletin of Information

## **EXTENSION TEACHING**

## **ANNOUNCEMENT**

AFTERNOON, EVENING, AND SATURDAY CLASSES

MORNINGSIDE HEIGHTS

1917-1918

LINE TO THE TA HELD

JUN 2 7 1917

PUBLISHED BY
Columbia University
in the City of New York
MORNINGSIDE HEIGHTS
NEW YORK, N. Y.

## Columbia University Bulletin of Information

[Issued 32 times during the academic year, monthly in November, and weekly between December and June. Entered as second-class matter at the New York, N. Y., Post Office, Dec. 22, 1900, under Act of July 16, 1894.] These include:

- I. Annual Reports of the President and Treasurer to the Trustees.
- 2. The Catalogue of the University, price 25 cents, and the Announcements of the several Colleges and Schools, and of certain Divisions, issued in the Spring, and relating to the work of the next year. These are made as accurate as possible, but the right is reserved to make changes in detail as circumstances require. The current number of any of these Announcements will be sent without charge upon application to the Secretary of the University.

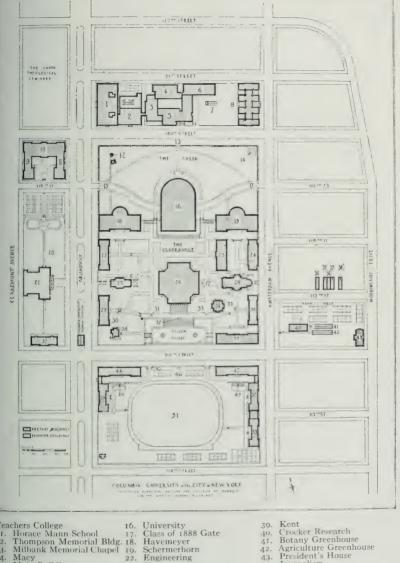
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The office of Extension Teaching is Room 301 University Hall.

For any courses added after June 1 see special circular to be issued in September.

## INFORMATION

## IN REGARD TO THE BUILDINGS AND GROUNDS OF COLUMBIA UNIVERSITY





- Thompson Memorial Bldg. 18. Milbank Memorial Chapel 19. Macy 4.
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# Columbia University Bulletin of Information

## **EXTENSION TEACHING**

## ANNOUNCEMENT

AFTERNOON, EVENING AND SATURDAY CLASSES
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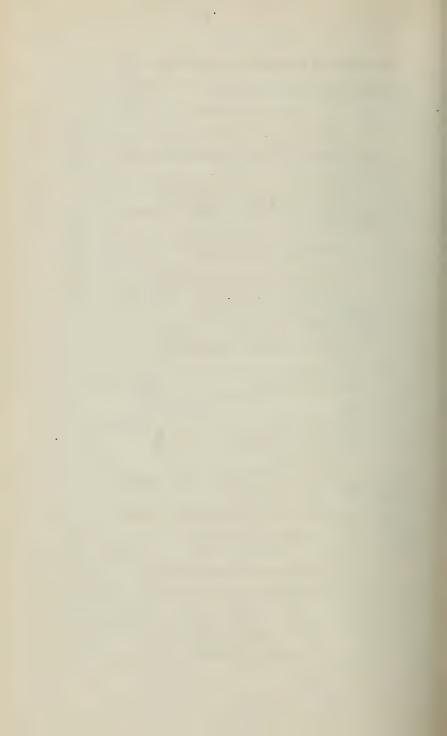
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## INTRODUCTORY

The Statutes of the University (Section 250) define Extension Teaching as "instruction given by University officers and under the administrative supervision and control of the University, either away from the University buildings, or at the University, for the benefit of students unable to attend the regular courses of instruction."

Students. Courses in Extension Teaching are planned for two classes of students: first, men and women who can give only a portion of their time to study and who desire to pursue subjects included in a liberal education of the character and grade of a college or professional school, but without any reference to an academic degree; second, those who look forward to qualifying themselves to obtain in the future academic recognition, involving acceptance of the work which they may satisfactorily complete in Extension Teaching.

Courses of Instruction. Under the direction of the University Council courses are offered in Extension Teaching which count toward the degrees of Master of Arts and Doctor of Philosophy.

Regular courses of instruction are offered in Extension Teaching which in many instances are coordinated so as to form at least the first years of collegiate and professional work, thus providing in the evening at Morningside Heights, and elsewhere, courses in subjects which are generally offered in the freshman, sophomore and junior years of college, so that students may qualify themselves for admission with advanced standing to Columbia and Barnard Colleges or other institutions as candidates for the degrees of Bachelor of Arts and Bachelor of Science.

There are also offered at Morningside Heights, in the evening, subjects which are required of students of the Schools of Mines, Engineering and Chemistry, so that a student may pursue some special line of scientific study or prepare himself for advanced study in these schools. Classes in these schools are open only to those who have had a preliminary course of three years in Columbia College or the equivalent. This preliminary collegiate training may be taken in part or in full in Extension Teaching in the evening by students engaged in business during the day. See pp. 10, 11, and special circular.

Evening courses are offered in architecture, leading to a certificate, at Morningside Heights which correspond to courses of the Columbia University School of Architecture. See pp. 6, 7.

Evening classes in business, forming a three-year course leading to a certificate and preparing for the state examination for the certificate of Certified Public Accountant, are given at Morningside Heights. A special circular describing these courses in detail will be mailed upon request. See also pp. 7, 8.

A series of courses intended to equip students for the position of private secretary is also offered. The completion of these courses will require two years for high school graduates. These courses are carefully described in a special circular which will be mailed on application. See also pp. 12, 13.

A complete series of courses in library economy are given for the purpose of training high school and college graduates for positions as library assistants. A circular stating the requirements for students in this course will be mailed upon request. See also pp. 69, 70.

Many courses are offered which aid a student to prepare for the Schools of Business, Law and Medicine or to complete his preparation for Columbia College. See pp. 9, 10.

A two-year course in practical optics is offered in cooperation with the Department of Physics for the special training of those who expect to become optometrists. A special circular will be mailed upon request. See also p. 12.

Courses are offered in agriculture for those who desire special work in that subject.

Under the Extension Teaching Department are offered also a number of classes in dentistry. These include graduate courses for practitioners, intended for graduates of reputable dental institutions. They are given at 35–37 West Thirty-ninth Street. In addition, classes in oral hygiene for licensed dental hygienists, designed to train women for the practice of operative dental hygiene, are offered at the Vanderbilt Clinic, Fifty-ninth Street and Tenth Avenue.

A large number of other courses in varied subjects is given late in the afternoon and on Saturday which repeat those in liberal studies offered in the Schools of the University. These are given in the same manner and often by the same instructors as the regular courses. In most instances university credit is granted.

Courses covering the first year of collegiate study and supplying the premedical year of the Long Island College Hospital are given at that institution. See special circular.

Numerous classes are given at various centers. These are either regular courses of collegiate grade or short lecture courses without academic credit. See special circular.

Lecture-study courses in certain subjects forming fifteen or thirty lectures alternating with quiz or conference hours are given at Morningside Heights and at centers when requested.

Centers for the study of choral music are maintained at Morningside Heights and Brooklyn and large choral concerts are given during the year.

The Department of Extension Teaching maintains also the Institute of Arts and Sciences, described on p. 14.

Registration. Registration in the Winter Session begins September 19, 1917; in the Spring Session, January 31, 1918. The office of the Registrar is in University Hall, East Corridor. It is open regularly from 9 a. m. to 5 p. m., and on and after October 8, from 7 to 9 p. m., but from September 19 to October 5, 1917, and from January 31 to February 15, 1918, the office will be open in the evening from 7 until 9:30. On Saturday it is open from 9 a. m. to 12 m.

• Students are permitted to attend any course once before registering. Thereafter they are required to come to the Registrar's office in person and file a registration blank giving such information as may be required for the University records and a statement of the courses they intend to pursue. Under the Statutes of the University the payment of fees constitutes part of registration. Accord-

ingly, students should come prepared to pay the stated fees for the courses for which they desire to register.

Students are required to renew their registration in person at the beginning of the Spring Session. Students taking courses at a local center will register at that center in accordance with instructions given in the statements introductory to those courses.

Fees. University fee, for students in Extension Teaching exclusively, for each year or any part thereof, \$5.

Tuition fee: the fee for each Session as announced in the description of the course.

Unless otherwise directed, students will pay all fees at the office of the Bursar, West Corridor, University Hall. This office is open daily from 9:30 a. m. to 3:30 p. m.; Saturday from 9:30 a. m. to 12 m. It will also be open every evening from 7 to 9:30 (except Saturday) from September 19 to October 5, 1917, but from October 8 to November 2, from 7 to 9, on Monday and Friday evenings only. It will be open every evening (except Saturday) from 7 to 9:30 from January 31 to February 15, 1918, but from February 18 to March 1, from 7 to 9, on Monday and Friday evenings only.

The University Statutes provide that tuition fees, the University fee, and laboratory deposits are payable in advance. Registration will not be complete until such fees are paid. Payment of fees after the last day of registration, Winter Session, October 6, 1917, Spring Session, February 16, 1918, imposes automatically the statutory charge of \$5.00 for the privilege. Under the regulations, the privileges of the University are not available to any student until he has completed his registration.

The fees to be paid by students are subject to change at any time at the discretion of the Trustees.

After October 6, 1917, for the Winter Session, and February 16, 1918, for the Spring Session, no reduction or return of fees will be made to persons who discontinue any course or courses for which they have registered. Exception to this rule may be made in the case of those who, because of serious personal illness certified to by a physician of reputable standing, are obliged to withdraw entirely from all of their courses. In considering such applications the student will be regarded as having withdrawn upon the date on which the Registrar receives from him notice of his withdrawal, and any refund will be reckoned from that date. In the case of new students who enter for the first time after October 6, 1917, for the Winter Session, and February 16, 1918, for the Spring Session, one week from the time of first registration will be allowed for arrangement of program. Thereafter no refunds will be granted.

Students in courses in local centers will pay either the fee arranged by the local center or the usual fees described above. They will pay fees to the treasurer of the local center unless otherwise directed. Extension Teaching students taking courses in local centers who desire to receive credit for their work must fulfil all the requirements of matriculation.

Admission. No examination is required for admission to courses offered in Extension Teaching, but in cases of doubt, students must satisfy the instructors concerned that they can pursue the courses with advantage. It is expected that

prospective students in all collegiate and professional courses shall have had a full secondary school education. The courses are open, unless otherwise stated, both to men and women. Students under eighteen years of age are not admitted to classes in Extension Teaching. Admission to a course is finally determined by the Director according to the qualifications of the student, and the privilege of attendance upon a course which the student is, for any reason, found unfitted to pursue with advantage will be withdrawn.

With students who intend to begin or resume regular attendance under any faculty of the University, the question of academic credit for Extension Teaching courses should in every case be considered and approved by the designated representative of the Committee on University Admissions. Proper blanks may be obtained in the office of Extension Teaching.

Candidates for admission as matriculated students will be permitted to register provisionally subject to the presentation of satisfactory credentials. Record of attendance will date for matriculated students from September 27, 1917, for the Winter Session, and from February 6, 1918, for those entering in the Spring Session, and absences for students who enter late will be counted from those dates.

A matriculated student is expected to conform to the rules for registration of the college or school of which he is a member. Students who expect later to apply for credit must secure approval of their schedules before registration.

Matriculated students in the various schools of the University will be allowed to attend courses in Extension Teaching in accordance with the regulations of the several schools; they must, however, register and pay the fees in the same way as other students in Extension courses.

Students should avoid assuming too heavy a program. Those working for credit will not be allowed to register for more than eight points in each Session without securing the consent of the Director.

In conformity with the custom in the University, students, not otherwise enrolled when applying for registration in Extension Teaching, may be called upon to file with the Registrar a letter signed by some responsible person, testifying to the character of the student thus applying.

Students admitted from other colleges are required to present certificates of honorable dismissal.

Privileges. Students taking six points each Session have the privileges of the Library and, in the case of men, the University Gymnasium. The privilege of residence in the dormitories is limited with Extension Teaching students to men in good standing pursuing programs aggregating not less than eight points each Session. Women students in Extension Teaching may reside in Whittier Hall under certain conditions depending upon the amount of work taken.

Attention is called to the restaurant service at the University Commons maintained for the use of students where a dining-room for men and women is located.

Rest rooms for women students are located on the first floor of Philosophy Hall and in Room 709 Journalism Building, open in the morning and afternoon. A coat room in the basement of the Journalism Building is provided for the use of students.

Office. The office of Extension Teaching is Room 301 University Hall. Full information as to this Department may be obtained at this office, which is open

from 9 to 5 daily, Saturday 9 to 4. The office will be open every evening, except Saturday, from 7:30 to 9:30 from September 19 to October 5, 1917, and from January 31 to February 15, 1918. When the office is not open, students are referred to the office of the Registrar, 315 University Hall.

Adviser to Women Students. Attention is called to the appointment of an Adviser to Women Students in Extension Teaching. They are invited to apply freely to her for help and advice in regard to all matters concerned with their welfare at the University. Those under twenty-five years of age, not living with parents or relatives, must secure her endorsement of their place of residence. Students may confer with the Adviser on any afternoon, except Saturday, between 2 and 4:30, in Room 301 University Hall, or, if necessary, by special appointment.

Location. Intramural collegiate and professional courses will be given at Columbia University. Extramural courses will be given at the Long Island College Hospital, corner of Henry and Amity Streets, Brooklyn, at Scranton, Stamford, Yonkers, and at centers where there may be sufficient demand.

Classes will also be conducted at the New York Chapter of the American Institute of Banking, 138 East 35th Street.

The most convenient means of access to the University are the Subway (Broadway Branch) to 116th Street, Columbia University Station, the Sixth or Ninth Avenue Elevated to 110th Street Station, and Broadway or Amsterdam Avenue surface lines.

Calendar and Hours. Columbia University opens on September 26 and Extension courses begin Thursday, September 27. The academic calendar calls for thirty weeks of actual class work. The examination period for the Winter Session begins January 28. The Spring Session will open February 6. The examination period for the Spring Session begins May 20. The examinations are given in the hours usually assigned to recitations and lectures. The calendar for Extension Teaching is the academic calendar of the University, except in regard to examinations. There will be no classes in Extension Teaching on the following days: Election Day, November 6; Thanksgiving Day and the two days following (November 29, November 30 and December 1); December 20 to January 2, inclusive; February 22; April 5 to 9, inclusive; May 30. There will be classes on February 12. See p. 123.

Extension courses are usually given in the afternoon after three o'clock, in the evening of every week day, and on Saturday morning.

**Absences.** It is a student's duty to attend punctually each class or laboratory exercise in each course. For credit toward a degree or for a certificate of proficiency, attendance at nine-tenths of the sessions is required in addition to the proficiency attested by class work and examination. Absences are counted from the first meeting of the class in each Session.

A student may be absent without penalty in a Session as follows: from a course meeting once weekly, twice; from a course meeting twice weekly, three times; from a course meeting three times weekly, four times; from a course meeting four times weekly, five times; from a course meeting five times weekly, six times.

In case this limit is exceeded, a student receiving a grade of D shall not be entitled to credit for that course; a student receiving a grade of C or higher may

submit a statement showing the cause of each absence. If, in the judgment of the Administrative Board, these causes were imperative, full or partial credit for the course may be assigned by the Director upon the recommendation of the Administrative Board, in accordance with the extent and reason of the student's absences and the standing attained in the course.

Tardiness counts as half an absence.

**Examinations.** Two examinations are regularly held, one at the close of the Winter Session, and the second on the termination of the course. A mid-term report is sent to the Director by the various instructors, approximately on November 15 and March 25. For examination at special times, the fee is \$5 for each course.

Students who fulfil the conditions of registration, attendance and accomplishment of work prescribed, together with the payment in full of the fee for the course, will receive a report of standing from the Registrar within three weeks after the close of each Session.

The student's performance in a course is reported according to the following grades: A, excellent; B, good; C, fair; D, poor (not passing); F, total failure. In graduate courses P indicates passed; F, failure. H indicates a record of satisfactory attendance only.

The University Press Book Store. The University Press Book Store, situated in the Journalism Building, supplies students and officers with text-books and other needed material at stated discounts from list prices. These discounts are fixed by the Trustees of the Columbia University Press. The store will be open from 8 a. m. to 9 p. m., from September 26 to November 1. During the Spring Session it will be open in the evening from February 6 until March 1.

Architecture. Students will receive the Certificate of Proficiency in Architecture when they have completed the following courses or their equivalents. It should be understood that this arrangement must remain more or less flexible or variable in order to suit the conditions of individual students. Such conditions may make it necessary, for instance, to postpone certain subjects in architecture while entrance deficiencies are made up; and again, subjects assigned to any year may be taken in an earlier year if in the latter any courses have already been cleared. Consequently, the curriculum may be considered one of indeterminate duration, although it should be possible to cover the required work in six years. For details of Certificate course see special bulletin.

Yea	r	. Winter Session		Spring Session
I	eAı	Elements of Architecture	eA2	Applied Elements
	eA3	Projections and Intersections	eA6	Descriptive Geometry
	eA71	Freehand Drawing	or eA10	Shades and Shadows
			eA72	Freehand Drawing
II	eA5 eA7 eA27 eA61 eA73	Shades and Shadows Perspective Ancient Arch'l History Elementary Design Water Color Drawing	eA8 or eA6 eA28 eA62 eA74	Perspective Descriptive Geometry Medieval Arch'l History Elementary Design Water Color Drawing

III	eA15	Building Materials	eA16	Building Materials
	eA9	Stereotomy	eA12	Specifications
	eA29	Renaissance Arch'l History	eA30	Modern Arch'l History
	eA63	Intermediate Design	eA64	Intermediate Design
	eA51	Principles of Planning	eA52	Principles of Composition
IV	eAII	Mechanical Equipment of		
		Buildings	eA82	Modeling
	eA31	Ancient Ornament	eA32	Ancient Ornament
	eA19	Arch'l Engineering	eA20	Arch'l Engineering
	eA65	Advanced Design	eA66	Advanced Design
V	eA75	Charcoal Drawing	eA76	Charcoal Drawing
	eA65	Advanced Design completed	eA66	Advanced Design completed
	eA33	Medieval Ornament	eA34	Medieval Ornament
VI	eA67	Thesis Design	eA68	Thesis Design
		Life Drawing	eA78	Life Drawing
		Modern Ornament	eA36	Modern Ornament

Courses in mathematics and in structural mechanics as follows will also be required: Advanced algebra (Math. e1 or e2); analytical geometry (Math. e3 or e4); calculus (Math. e75 or e78); mechanics of construction (Str. Mech. eZI-eZ2). These courses are not included in the schedule for the reason that their position in such an organized curriculum cannot be determined until the accomplishments of the individual student in these subjects are ascertained.

The work in design will follow the Calendar of Design issued by the Society of Beaux-Arts Architects. Candidates for the Certificate of Proficiency will be required to obtain awards as indicated on pp. 24, 25 in the description of courses in design, but in all cases registration for design must continue for at least six sessions regardless of the number of awards obtained.

Business. Columbia University through its Extension Teaching Department offers evening courses in business, including a complete series of classes for students planning to take the state examinations for certified public accountant.

The object of these courses is to give a thorough training for those who desire to enter upon a business career immediately after leaving high school, and also to provide for persons already engaged during the day instruction at night in the principles of business, commerce and finance.

At the close of each Session students will receive from the Registrar a report of standing, and those who have completed the course in a manner satisfactory to the Administrative Board will receive a certificate signed by the Director of Extension Teaching. In order to be eligible for a certificate covering the entire course a student must secure 48 points. This course is described in detail in a special circular which will be mailed upon request.

Schedule of Classes for the Certificate in Business:

#### FIRST YEAR

Winter Session		Spring Session
Business e23		Business e24
Business e73		Business e74
Business e61		Business e62

### COLUMBIA UNIVERSITY

Winter Session	SECOND YEAR	Spring Session
Business e25		Business e26
Business e27		Business e28
Business e75		Business e76
Economics e1		Economics e2
	THIRD YEAR	
Business e129		Business e130
Business e131		Business e132
Business e133		Business e134
Business e7		Business e8
Elective (2 points)		

School of Business. Graduates of high schools, who have satisfactorily completed in the Department of Extension Teaching work equivalent to that offered by Columbia College or Barnard College in the first two years, will be admitted to the School of Business. The degree of B.S. is conferred upon the completion of the course in the School of Business. Those who desire to complete in Extension Teaching the two preliminary years of collegiate work, should follow the program suggested below, completing 64 points, including English eA1-A2. eBI-B2; two years of French, or German, or Spanish; Philosophy eAI-A2; History eA1-A2; Economics e1-2; Economics e5-6; Mathematics eA1 and eA3; and 15 points in electives. See special circular.

College Course. Students who are unable for financial reasons to enter college upon graduation from a secondary school, may profitably continue their training through Extension Teaching classes while employed during the daytime, with the expectation of being later admitted to Columbia College with advanced standing as candidates for the degree of Bachelor of Arts. The Director of the University Admissions or the Dean of Columbia College will be glad to consult with such students and to advise them as to the courses which may most profitably be taken by them in Extension Teaching.

# Arrangement of Collegiate Subjects

Students in Extension Teaching should regard as of first importance the selecting of subjects of study which are immediately of value to them and not undertake their work with the primary object of obtaining academic recognition. They will be assisted in selecting their subjects of study in the office of the Director, Room 301 University Hall.

The following arrangement of courses is given here as an aid in the grouping of subjects and not as indicating any convenient route to a degree.

FIRST YEAR	THIRD YEAR
College Points	College Points
English eA1-A2 6	Philosophy 4
Modern language 6	History eA1-A2 6
Mathematics 4	English e17–18 4
_	Modern language 2
16	_

SECOND VEAR

FOURTH VEAR

OEC	OND I DAK	1.OOKIH I	LAK
	College Points		College Points
English eB1-	B2 4	English e23-24	4
Philosophy e	A1-A2 6	Zoology e1-2	4
Modern langu	age 6	Economics e1-2	6
		Politics e1-2	
	16		_
			20
	Fifth	YEAR Colle	ege Points
Moder	n language		6
Histor	y		6
Science	9		8
			20
Total.			88

College Entrance Course. Mature students who are unable to attend a secondary school and other persons who are engaged in business throughout the day may prepare themselves for college by pursuing courses in Extension Teaching. These courses are not open to immature students nor to any who should be in high school or a preparatory school. The following schedule is suggested for those who desire a complete training in subjects required for college entrance. Students may elect the complete course or only such classes as they may need.

In order to count any course in Extension Teaching toward admission, candidates must, before beginning the course, secure written permission from Professor A. L. Jones, Director of Admissions, Room 321 University Hall; except candidates for admission to Barnard College, who must secure written permission from the Dean of Barnard College.

Persons of unusual ability may complete the entire schedule given below in less than four years; this is true especially of those who may be able to attend in the late afternoons as well as at night.

First Year	Third Year
English eW1-W2	English eY1-Y2
One elementary language	History eX1-X2
Mathematics eX3, eX6	Physics eA1-A2
Second Year	Fourth Year
English eX1-X2	Chemistry eA1
Intermediate language	Mathematics eA1, A2
Mathematics eYI	Elective subjects

A complete list of courses given in Extension Teaching that may be offered for entrance credit follows:

Botany e1-2, for botany

Chemistry eA1 or eA2, for chemistry

Drawing eW1 or eW2, for drawing

¹ While work done in University Extension Teaching courses is not primarily accepted in lieu of entrance examinations to Barnard College, entrance conditions may be removed by a grade of at least C, subsequently obtained in the appropriate Extension courses. In exceptional cases, for reasons of weight, the Dean may grant permission to a student to count an Extension course for entrance credit, without her having taken an entrance examination in the subject.

English eWI-W2 and eXI-X2, for English I English eY1-Y2, for English 2 French eA1-A2, for elementary French French eBI, for intermediate French French eB2, for advanced French Geography e25-26, for physical geography German eA1-A2, for elementary German German eB1-B2, for intermediate German German e5a-6a, for advanced German Greek e1-2, for Greek a, b and g Greek e3, for Greek c History eX1 or eX2, for History d History eX3 or eX4, for History a Italian e1-2 for elementary Italian Latin eX1-X2 or eX8 and eX3, for second-year Latin, Latin 3 Latin eY1-eY8, for Vergil, Latin 5 Latin eY3 or eY4, for Cicero, Latin 4 Latin eY5 or eY6, for advanced Latin prose composition, Latin 6 Mathematics eX1 or eX2 or eX3, eX6, for elementary algebra Mathematics eX1 or eX2 or eX5 or eX6 for algebra, quadratics and beyond Mathematics eY1 or eY2, for plane geometry Mathematics eAI, eA3, eI (any two), for advanced mathematics Physics eA1-A2, for elementary physics Spanish e1-2, for elementary Spanish Zoology e1-2, for zoology

Engineering Courses. In taking classes in engineering and allied subjects in Extension Teaching a student may adopt one of two methods in arranging his studies. (I) He may select only the class or classes in which he is especially interested, and which will be of most immediate assistance to him in his present work. In every case he must be careful that he possesses all the prerequisites for each course which he proposes to pursue. Extension Teaching offers many classes of this nature, planned especially for mature students already engaged in engineering work and at liberty to devote only a few evenings a week to professional study. Such courses do not in themselves lead to any degree, though some of them bear credit applicable to degrees, when other conditions have been fulfilled, as stated below. (2) The student may plan his work in such a way that when supplemented by day attendance, after having completed satisfactorily the entrance requirements, it will lead ultimately to a degree in engineering. No degree is given for work taken exclusively in the evening.

A student desiring to matriculate in the Schools of Mines, Engineering and Chemistry is required to present, in addition to the regular four years of the preparatory school, at least three years of collegiate work.

Extension Teaching has provided a schedule whereby a student by studying in the evening can complete this collegiate preparation. He will then be allowed to enter the Schools of Mines, Engineering and Chemistry, provided always that he has satisfied the requirements in regard to the work of the preparatory school. The collegiate course, outlined below, is that recommended by the Faculty of

Applied Science in Columbia University. It presupposes a full four-year high school course, including, among other subjects, intermediate algebra, solid geometry, trigonometry, physics, chemistry, four years of English and three years of a modern language.

In order to avoid conflicts the subjects should generally be taken in the order suggested, though in many cases the program will necessarily be rearranged to suit the needs of the individual student. All persons thinking of pursuing this course are urged to confer with the officers of Extension Teaching in Room 301 University Hall. A few subjects in the third, fourth and fifth years are not given at present in Extension Teaching, but they will be added as the need arises.

at present in Extension reaching,		
Winter Session	FIRST YEA	R Spring Session
English eAt	3	English eA23
Mathematics e1	_	Mathematics e4 3
Physical Education eA1	-	Physical Education eA2 2
History eA1		History eA2 3
Tilistory Cliff	_	_
,	II	11
S	ECOND YE	AR
Mathematics e75	4	Mathematics e76 4
Philosophy eA1		Philosophy eA2 3
English e17		English e18 2
English eB1		English eB2 2
Economics e1		Economics e2 3
Economics C1		_
	14	14
	THIRD YE	
Chemistry e3	-	Chemistry e4 5 German eE2 3
German eE1	_	
Politics e1	3	Mathematics e22 3
	_	
	II	
F	OURTH YE	
Chemistry e11	5	Chemistry e12 5
Mechanics e1	2 .	Physics e6 6
Elective	2	Mineralogy e14 3
	_	
	9	14
	FIFTH YE.	AR
Mechanical Drawing e1	2	Mechanical Drawing e2 2
Mechanical Drawing e3		Mechanical Drawing e4 2
Physics e7		Physics e8 7½
Physics e49		Physics e50 1 ½
	13	13
		Electives <u>3</u>
		Total124

Students desiring to secure a baccalaureate degree in addition to the professional degree should plan to take the last year of the above course in Columbia College.

A scholarship, affording free tuition in the graduate courses of the Schools of Mines, Engineering and Chemistry will be given each year to the student who completes the above outlined evening course with the highest record.

Law. In order to secure the degree of Bachelor of Laws from Columbia University, a student must present 94 points of collegiate study before entering the course. Students planning at some future time to study law are, therefore, advised to complete the collegiate work outlined on page 8, which, when supplemented by one course of six points, will answer the entrance requirements provided the student has also satisfactorily completed the 15 units of high school studies required for entrance to college.

Medicine. In order to enter the College of Physicians and Surgeons in Columbia University, students must present at least two years of collegiate study, amounting to 72 points, if the work is done at Columbia College or in Extension Teaching, in addition to the regular high school preparation.

Students intending later to study medicine may complete the evening collegiate course outlined on page 8, which will answer the collegiate requirements for admission. It is necessary, however, that they include courses in chemistry (two years consisting of general inorganic, qualitative and organic) and physics and zoology (one full year each).

Optics. A two-year technical course in practical optics, leading to a certificate issued by the University, is given by Extension Teaching. The required classes in each year are mentioned in the outline given below. A special circular describing this series and giving full information concerning the entrance requirements may be obtained from the Secretary of the University. Two scholarships covering all tuition fees in practical optics are awarded annually by the American Optical Company of Southbridge, Massachusetts.

## FIRST YEAR

Optometry A1 Algebra, geometry and trigonometry (Review)

Physics A1-A2 General elementary physics

Optometry 1-2 Theoretical optics

Optometry 3-4 General anatomy with special reference to the anatomy and physiology of the eye

Optometry 6 Practical optics

Optometry 8 Theoretical optometry

#### SECOND YEAR

Optometry 9-10 Theoretical optics

Optometry 11-12 Physiological optics

Optometry 13-14 Practical optics

Optometry 15-16 Theoretical optometry

Optometry 17-18 Pathological conditions of the eye.

Optometry 19-20 Practical optometry

Secretarial Studies. The Department of Extension Teaching has provided for men and women a series of courses given in the late afternoon and evening which will lead to a certificate in secretarial studies.

The object of these courses is properly to equip students who desire to become private secretaries or to hold important positions in offices as assistants to public officials or to persons engaged in professional pursuits. Students who undertake these courses in full must have had a high school education or its equivalent. The complete series will demand two years, although this may be reduced by attendance at Summer Sessions. Students may make use of both the late afternoon and evening courses. These are described in detail in a special circular, mailed upon request.

## Courses leading to a Certificate in Secretarial Studies:

	Points
Stenography e1-2, Typewriting e1-2, counted as	
English eA1-A2	. 6
Modern languages	. 12
Secretarial correspondence e1-2 or Business English e1-2	. 6
Business e7-8 (Business Administration)	. 4
Elective	. 12
Total	. 48

Students may secure the degree of B.S. by pursuing secretarial studies in the School of Business. See special circular.

For the degrees of Master of Arts and Doctor of Philosophy under the Faculties of Political Science, Philosophy and Pure Science. Courses in Extension Teaching which have previously been approved by the Executive Committee of the University Council as being equivalent to the corresponding work regularly offered under the Faculties of Political Science, Philosophy and Pure Science may be counted toward the fulfilment of the requirements for the degree of Master of Arts. These courses are numbered 100 and above and marked Credit II.

Candidates for the degrees of Master of Arts and Doctor of Philosophy must hold a baccalaureate degree in arts, letters, philosophy or science, or an engineering degree from an approved institution, or have an education equivalent to that represented by one of these degrees.

Students are advised to ascertain, by addressing the Chairman of the Committee on University Admissions, before coming to the University, whether the college from which they have received their baccalaureate degree is upon the list of institutions whose degrees are accepted by Columbia University as entitling the holder to matriculate as a candidate for the degrees of Master of Arts and Doctor of Philosophy; or for a ruling upon an education claimed to be the equivalent of a bachelor's degree.

For general rules and regulations with regard to the degrees of Master of Arts and Doctor of Philosophy, students are referred to the Announcement of the Faculties of Political Science, Philosophy and Pure Science, which may be obtained from the Secretary of the University.

New students who are expecting to become candidates for these degrees should arrange their curriculum in consultation with and under the advice of the repre-

sentative of the department in which they elect to do the major part of their work.

A year of residence in the Faculties of Political Science, Philosophy and Pure Science is defined as attendance upon courses approved by the Faculties aggregating not less than thirty tuition points distributed over a period of not less than one academic year or its equivalent.

For the Degree of Master of Science. The degree of Master of Science is awarded as a graduate professional degree under the Faculty of Applied Science, the Faculty of Practical Arts, the School of Architecture and the School of Business. For information with regard to candidacy for this degree application should be made to the Dean or Director of the Faculty or School concerned.

The Institute of Arts and Sciences. The Institute of Arts and Sciences, established by action of the Trustees of Columbia University on February 3, 1913, is a division of the Department of Extension Teaching. The aim of the Institute is to provide a popular late afternoon and evening program consisting of general lectures and events of a cultural nature.

The program is planned for busy men and women. Its scope includes single lectures and short series of lectures, of not over six, on history, literature, art, music, geography, science, and on current economic and social problems; it comprises also illustrated travel lectures, recitals, dramatic readings and vocal and instrumental as well as chamber music concerts.

The program is subscribed for as a whole. The annual dues are \$10 payable in advance with an enrolment fee of \$5 payable only once provided the enrolment does not lapse.

A member of the Institute is entitled to free admission for himself and one other person to all the lectures and other events on the regular evening program, but in the afternoon only one person is admitted on the ticket. The ticket is transferable. Altogether the membership ticket includes free admission to approximately 250 lectures, readings, concerts, recitals, etc., throughout the season. The program continues from October to April.

The University auditoriums are used. Memberships are accepted at any time and are good for one calendar year from the first of the month nearest the time of enrolment.

A special pamphlet describing in detail the program of the Institute will be mailed upon request.

Regulations Governing Credit toward the Degrees of A.B. and B.S., Columbia College, Barnard College and Teachers College. Students of Columbia College, Barnard College and Teachers College will be allowed to attend Extension courses which are approved by the Committees on Instruction and will be allowed to count them toward the degrees of A.B. and B.S. under the following regulations:

- 1. The election of Extension courses must be approved in advance by the Committees on Instruction.
- 2. Students will not be allowed to exceed a total of 16 hours in Barnard College, or 16 hours in Teachers College including the hours of Extension courses, save for reasons of weight and by the special permission of the Committees on Instruction.

- 3. Students desiring these courses to count toward the degrees of A.B. and B.S. must obtain at least a grade of C.
- 4. Matriculated students electing Extension courses after having obtained the approval of the Committees on Instruction must register for these courses at the office of the Registrar and pay the fees required for such courses. Teachers College students taking Extension courses must register for such work at the Registrar's office of Teachers College and pay the fees therefor in Teachers College.
- 5. No degree is given for undergraduate courses taken exclusively in Extension Teaching.

Courses in Teachers College. Teachers College in its School of Education offers to matriculated students a number of its regular courses at hours in the afternoons and on Saturday mornings which are convenient to teachers. These courses include the history and philosophy of education, educational administration, educational psychology, secondary education, elementary education, kindergarten education, and certain courses on the methods of teaching academic subjects.

Teachers College offers also in its School of Practical Arts, at similar hours and in the evenings, regular and special classes in foods and cookery, sewing and textiles, household administration, nursing and health, household chemistry, fine arts, music, physical education, wood-working, metal-working, drawing, designing, etc. The special classes in the practical arts for non-matriculated and Extension students are fully described on pp. 95 ff. of this bulletin and are open to all who are qualified to enter them.

For further information concerning courses for matriculated students, see the circular of Afternoon, Evening and Saturday Morning Courses which may be obtained from the Secretary of Teachers College.

Relation of Extension Teaching to other University Work. I. The requirements for the degree of Master of Arts are stated in full in a bulletin entitled Instructions for Candidates for the Degrees of Master of Arts and Doctor of Philosophy, which will be sent upon application to the Secretary of the University. This bulletin should be consulted by all students electing graduate courses.

- 2. Students taking Extension courses who desire to become candidates for the degree of Bachelor of Arts or Bachelor of Science or for professional degrees in Science, Law, Medicine, Business and Practical Arts should make application to be received as such to the Director of Admissions, Room 321 University Hall. The requirements for admission to the University as a candidate for baccalaureate degrees are set forth in the bulletin, Entrance Examinations and Admission, 1917-1918, which may be obtained on application to the Secretary of the University.
- 3. Students taking Extension courses who desire to become candidates for a diploma in teaching or the degree of Bachelor of Science in Practical Arts should make application to be received as such to the Secretary of Teachers College. For full information in reference to the requirements for admission to the School of Education or the School of Practical Arts of Teachers College, apply to the Secretary of Teachers College.
- 4. Students using Extension courses for the purpose of securing entrance credits should consult Professor Adam Leroy Jones, Room 321 University Hall.

For admission to Barnard College, students should consult the Dean of Barnard College before registering.

Local Centers. To facilitate the work of instruction away from the University, the Administrative Board may institute local centers. Local centers may be established wherever a local community or a local organization undertakes to offer, year by year, one or more of the Extension courses of the University. Local boards of education, teachers' associations, schools, societies and clubs desirous of offering Extension courses may be constituted local centers. In general, however, a special local committee (president, secretary, treasurer, and five members representing the particular community) is the usual organization of the local center.

Local centers are responsible, through the local committee, for the effective arrangement of Extension courses they offer. They determine the courses in cooperation with the Director; they enlist local interest; they provide, by fees or the sale of tickets or otherwise, for all the expenses of their work—the course fee, the cost of syllabi, the travelling expenses of the lecturer, lecture-hall, janitor, printing and advertising, and when lectures are to be illustrated they must provide the lantern and operator. The Administrative Board will establish and conduct local centers where suitable arrangements may be made and sufficient guarantees secured.

#### **Enrolment**

Year	Morningside	Extramural	Total
1910-11	922	390	1312
1911-12	1329	271	1600
1912-13	2016	296	2312
1913-14	2664	723	3387
1914-15	3407	754	4161
1915-16	3960	821	5324 1
1916–17	5328	680	67181

<sup>&</sup>lt;sup>1</sup> Including (1915-1916) 543, (1916-1917) 710 students attending Extension classes in Teachers College.

The attention of Extension Teaching students is called to the graduate, college and professional courses given during the summer in the day and evening, from July 9 to August 17. Address the Secretary of the University.

### COURSES OF INSTRUCTION

NOTE. The University reserves the right to withdraw, or change, any courses which are named in this statement.

Courses corresponding and equivalent to prescribed courses of Columbia College are designated by letters A, B. AI, BI, refer to the Winter Session (September-January) in such a course; A2, B2, to the Spring Session (February-May). In numbered courses, odd numbers designate the Winter Session, even numbers the Spring Session.

In the statement of each course the prerequisites are indicated except that the equivalent of the first half of a hyphenated course (e. g., Botany e1-2) is usually assumed to be a prerequisite for admission to the second half.

**Credits.** The academic credit that may be awarded to students who give evidence of having completed the prerequisite work required by the several faculties is indicated for undergraduate courses by points.

For courses numbered 100 to 299, inclusive, undergraduate credit will be determined by the various faculties under which the student intends to apply for such recognition. For entrance credits, see pp. 9, 10.

The question of credits for Barnard College, Columbia College and College of Physicians and Surgeons must be determined finally on consultation with the appropriate Committee on Instruction.

All courses marked Credit I—May be counted toward the degrees of A.B. and B.S. in all parts of the University where these degrees are given, and toward appropriate diplomas in teaching. See p. 14. For other courses, which under certain conditions may be offered for credit by candidates for the A.B. or B.S. degree, see Credit II.

IB—May be counted toward the degrees of A.B. and B.S. in Barnard College only.

Ic-May be counted toward the degree of A.B. in Columbia College only.

All courses marked Credit II—May be offered by graduate students toward the higher degrees. Open also to undergraduates on the appropriate Committee on Instruction obtained in advance.

All courses marked Credit IV—May be counted for matriculated students in the School of Practical Arts toward the degree of B.S. See p. 95

All courses marked Credit V—May be counted toward the appropriate degrees in the Schools of Mines, Engineering and Chemistry, and Architecture.

All courses marked Credit IX—May be counted toward the degree of B.S. in Business.

Any course numbered 100 or above may be counted for undergraduate degrees under the general rules.

The fees and points as stated with the various courses are for each Session. In the case of non-credit courses, the number of points is published merely to give a general idea of the amount of work required of the student.

No assignment of rooms for classes has been made in this Announcement. The place of meeting for each class may be learned by consulting a special bulletin which may be secured at any time after September 19, in the office of the Secretary, Room 213 Library, of the Registrar, East Corridor, or in the office of the Director of Extension Teaching, 301 University Hall.

### Agriculture

Columbia University, through the Extension Teaching Department, offers courses in agriculture. These courses may, with the approval of the Committee on Instruction, form part of the curriculum leading to the degree of A.B. for students of Columbia College. They will also be open to students who desire to take only courses in agriculture.

It is recommended that matriculated students planning to study agriculture should enter Columbia College and take the subjects prescribed for the degree. In addition to the courses in agriculture, matriculated students should take Chemistry A, Economics 1–2, Botany 1–2, Zoology 1–2, and Business e39–40.

Students irregularly prepared and desirous of undertaking courses in agriculture should consult Professor O. S. Morgan; office hours, 11 a.m.-12 m., Thursday, Friday, and Saturday, Room 511 Schermerhorn Hall, or Professor C. W. Larson; office hours, 10-11 a.m., Monday, Tuesday, and Wednesday, Room 301 East Hall, before registering for such classes.

Agriculture e1-2—Introductory agriculture. Lectures and laboratory. Credit I, IV. 3 points each Session. Professor Morgan

9:10-10:50 a. m., Saturday (lectures); laboratory, 4:10-6 p. m., Wednesday. Fee \$18 each Session

The object of this course is to give the student entering the study of agriculture a clear understanding of the main problems and principles of present-day scientific agriculture, particularly as practised in the eastern United States. All students undertaking the study of agriculture for the first time should take at least the Winter Session of this course.

Winter Session. The essentials of crop production as affecting the American cereal crops. Special attention will be given the following: crop rotation, fertilizers, manures, liming, varieties, cultural methods, food values, harvesting, storage, silos, farm machinery, seed improvement, selection, testing, and cost of production.

Spring Session. The production of hay, grass, legumes, potatoes and roots. The management of hay fields, clovers, alfalfa, vetches, cow peas, cereals for hay; pastures, seeding and management; the selection, planting, cultural treatment, harvesting of potatoes; the production of beets, turnips and rape for stock food.

Laboratory work will include the study of the characteristics of the crops studied, judging and scoring of corn and other grains, testing for germination and purity, reports on special topics, pot culture in the greenhouse and excursions to industrial plants and farms.

Agriculture e1a-2a—Course e1-2 without laboratory work. By special arrangement laboratory work may be included. 2 points each Session. Fee \$12 each Session. Professor Morgan

Section 1—9:10–10:50 a. m., Saturday Section 2—7:40–9:20 p. m., Friday

Agriculture e1b-2b—Laboratory work only. 1 point each Session. Professor MORGAN

4:10-6 p. m., Wednesday. Fee \$6 each Session

Agriculture e3-4—Soils and fertilizers. Lectures and laboratory. Credit I, IV. 3 points each Session. Professor Morgan

2:10-3:50 p.m., Thursday (lectures); laboratory, 2:10-4 p.m., Friday. Fee \$18 each Session

Principles of soil management, given in the Winter Session, deals with the origin, composition and properties of soils; the physical, chemical and bacteriological factors; plowing and tillage; soil types and cropping systems as related to farm management. Excursions.

Fertilizers, manures and soil amendments, given in the Spring Session, deal with soils and crop problems in agriculture from the standpoint of soil fertility, the supply in the form of manure, etc., and the practical economic consideration of maintaining and increasing the cropproducing power of lands. Cover cropping, green manures, liming and drainage are fully considered. Special plant studies on soils and fertilizers in the greenhouse laboratory.

Agriculture e5—Dairy industry. Lectures and laboratory. Credit I, IV, in special cases. 3 points Winter Session. Professor LARSON

1:10-2 p. m., Monday and Wednesday (lectures); laboratory, 2:10-4 p. m., Wednesday. Fee \$18

This course aims to acquaint students with the general subject of dairying and includes a study of the composition of milk, causes for variation and the methods of handling and disposing of milk. The methods of making butter, cheese, ice cream, condensed milk, milk powder and other dairy products will be briefly discussed.

The laboratory work will consist of a thorough study and the use of the Babcock test for fat in milk and also other commercial tests for milk and its products.

Agriculture e5a—Course e5 without laboratory work. 2 points Winter Session. Professor Larson

7:40-9:20 p. m., Wednesday. Fee \$12

Agriculture e6—Dairy husbandry. Lectures and laboratory. Credit I, IV, in special cases. 3 points Spring Session. Professor LARSON

1:10-2 p. m., Monday and Wednesday (lectures); laboratory, 2:10-4 p. m., Wednesday. Fee \$18

A comprehensive study of dairy cattle feeding and management. It will include a thorough study of balancing dairy rations and practical feeding methods. Care of dairy cows, breeding, calf raising, care of the sire, housing, handy devices in dairy, feeding and care of cattle for advanced registry, and fitting dairy animals for show.

The laboratory work will include actual calculation of rations, dairy accounts, plans of dairy buildings and systems, and visits to dairy farms.

Agriculture e6a—Course e6 without laboratory work. 2 points Spring Session. Professor Larson

7:40-9:20 p. m., Wednesday. Fee \$12

Agriculture e7—Farm buildings and equipment. Lectures and laboratory. Credit I, IV, in special cases. 2 points Winter Session. Professor LARSON 2:10–3 p. m., Tuesday (lectures); 3:10–5 p. m., laboratory. Fee \$12

The course will include discussions of principles and practice of farm building location, grouping, arrangement, planning and construction. Also planning and methods of constructing gates, fences and special handy devices for the farm. The mechanics of materials and special work of an architect will not be included.

Agriculture e8—Farm management. Lectures and laboratory. Credit IV, in special cases. 2 points Spring Session. Professor Larson

2:10-3 p. m., Tuesday (lectures); 3:10-5 p. m., laboratory. Fee \$12

The course aims to acquaint the student with the principles and practices involved in practical farm management and accounting. Students before registering should consult Professor Larson or Professor Morgan.

Agriculture e15—Tree fruits. Lectures and laboratory. Credit I, IV, in special cases. 3 points Winter Session. Fee \$18. Mr. KAINS

4:20-6 p. m., Monday (lectures)

4:20-6:10 p. m., Thursday (laboratory)

The principles underlying the production, management and disposal of tree fruits will be the major consideration of the Winter Session. Emphasis will be laid on the scope, adaptation and locations of fruit growing—tillage, fertilization, propagation, planting, inter- and covercropping, spraying, harvesting, storing, marketing, disposal of low grade fruit, pruning and rejuvenation of neglected trees. Excursions will form part of the laboratory work.

Agriculture e15a—Tree fruits. Lectures. Credit I, IV, in special cases. 2 points Winter Session. Mr. Kains

4:20-6 p. m., Monday. Fee \$12

Lectures as outlined for Agriculture e15.

Agriculture e16—Small fruits. Lectures and laboratory. Credit I, IV, in special cases. 3 points Spring Session. Fee \$18. Mr. KAINS

4:20-6 p. m., Monday (lectures)

4:20-6:10 p.m., Thursday (laboratory)

The study of the culture of bush fruits, grapes and strawberries will comprise the work of the Spring Session. Considerations similar to those developed in the course on tree fruits will be discussed. The two courses will thus form a brief practical course in temperate climate fruit growing.

Agriculture e16a—Small fruits. Lectures. Credit I, IV, in special cases. 2 points Spring Session. Mr. Kains 4:20-6 p. m., Monday. Fee \$12

Lectures as outlined for Agriculture e16.

Agriculture e17—Vegetable culture. Lectures and laboratory. Credit I, IV, in special cases. 3 points Winter Session. Fee \$18. Mr. KAINS

7–8:40 p. m., Thursday (lectures)

7-8:50 p.m., Monday (laboratory)

The vegetable culture work will comprise a study of the preparation of soil and composts; seed testing and sowing; hot-beds and cold frames, transplanting, companion and succession cropping; tillage, spraying, harvesting, storage, marketing, disposal of low grade products in kitchen; farm and market gardening.

Agriculture e17a—Vegetable culture. Lectures. Credit I, IV, in special cases. 2 points Winter Session. Mr. KAINS

7-8:40 p. m., Thursday. Fee \$12

Lectures as outlined for Agriculture e17.

Agriculture e18—Flower culture. Lectures and laboratory. Credit I, IV, in special cases. 3 points Spring Session. Fee \$18. Mr. KAINS

7-8:40 p. m., Thursday (lectures)

7-8:50 p. m., Monday (laboratory)

The purpose of the flower culture course is to familiarize the student with the best annuals, herbs and shrubs, their propagation, and management indoors and out. Discussions will be under heads similar to those in the course in vegetable culture and upon such phases of flori culture as house flowers, window gardening, flower beds, care of shrubbery, vines, shade trees, pruning of ornamentals, and tree surgery.

Agriculture e18a—Flower culture. Lectures. Credit IV, in special cases. 2 points Spring Session. Mr. Kains

7-8:40 p. m., Thursday. Fee \$12

Lectures as outlined for Agriculture e18.

For a course in agricultural economics, see p. 30 For courses in agricultural bacteriology see p. 39

### Anthropology

Anthropology e1-2—Ethnography of Africa. 2 points each Session. Mrs. Donohugh

7:30-9:10 p. m., Monday. Fee \$12 each Session

As a survey of the continent of Africa, this course is designed to study the geography, the races, the tribes, their social organization, religions, industries, division of labor, economic conditions, arts and family life.

### Architecture

The following afternoon and evening courses in architecture, offered in the year 1917–1918, are open to all qualified students without examination. They correspond, in part, to the work given in the School of Architecture, and equivalent courses will count toward the degree of Bachelor of Architecture for those who can present the required credentials for admission to the School of Architecture (see Announcement of the School of Architecture).

A typical program of study in architecture leading to the Certificate of Proficiency is given on p. 6. This program is recommended to all students beginning the study of architecture, even though they are not candidates for the Certificate, since it presents a logical and orderly system of instruction.

For detailed information in regard to the Certificate course see special bulletin. For courses in mathematics and structural mechanics, see pp. 70–72 and 44–46.

Architecture el—The elements of architecture. Credit V. 6 points Winter Session. Professor HARRIMAN

8:20-9:10 p. m., Tuesday and Friday. Drafting, 9:10-11 p. m., Tuesday and Friday. Fee \$36

Mouldings, the orders, intercolumniation and superposition, balustrades, arcades, doors, windows, roofs, spires, vaults, domes.

Architecture e2—Applied elements. Credit V. 8 points Spring Session. Professor Harriman

8:20-10 p. m., Tuesday and Friday. Fee \$48

Exercises in applications of elementary architectural forms as given in Course e1; of shades and shadows as given in Course e5, both of which are prerequisite.

Architecture e3—Projections and intersections. 3 points Winter Session. Mr. Allen

8-8:50 p. m., Tuesday and Friday

Drafting, 9-10:30 p. m., Tuesday. Fee \$18

Points, lines, planes and solids in simple and oblique positions, architectural motives in plan, elevation and section, developments of surfaces, practice in visualization. Recommended for

all draftsmen of little office experience and for students who intend taking Architecture e5, e7 and especially e6.

Will not be given for less than ten students.

Architecture e5—Shades and shadows. Credit V. 4 points Winter Session. Mr. Allen

7-7:50 p. m., Monday, Wednesday and Friday. Fee \$24

Brief, accurate and unique methods for determining the shadows of geometrical lines, plane figures and solids; also of the principal architectural members; practical applications.

Architecture e6—Descriptive geometry. Credit V. 4 points Spring Session. Mr. Allen

8-8:50 p. m., Monday, Wednesday and Friday. Fee \$18

Rapid and unique methods of solving problems relating to right lines and planes; phenomena of lines and surfaces; tangent planes; intersections and developments.

Will not be given for less than ten students.

Architecture e6a—Shades and shadows. Credit V. 4 points Spring Session, Mr. ZOLLER

7-7:50 p. m., Monday, Wednesday and Friday. Fee \$24

Architecture e5 repeated in Spring Session.

Will not be given for less than ten students.

Architecture e7—Perspective. Credit V. 3 points Winter Session. Mr. ALLEN

8-8:50 p. m., Monday and Wednesday. Drafting: 9-10:30 p. m., Wednesday. Fee \$18

Brief, direct, and unique methods, using distance points, the office method; the perspective of shadows. Entourage.

Will not be given for less than ten students.

### [Architecture e8-Stereotomy

Will not be given in 1917-1918; to be offered in 1918-1919]

Architecture e8a—Perspective. Credit V. 3 points Spring Session. Mr. Allen

7-7:50 p. m., Monday and Wednesday. Drafting: 8-9:40 p. m., Wednesday. Fee \$18

Architecture e7 repeated in the Spring Session.

Architecture e11—Mechanical equipment of buildings. Credit V. 3 points Winter Session. Mr. Walsh

8-8:50 p. m., Monday and Friday. Fee \$18

The principles of sanitation, the methods of sewage disposal and the design of a modern plumbing system in accordance with the New York City Building Code.

The different methods of heating and wiring buildings and the advantages and disadvantages of each; the regulations of the New York City Building Code, and of the National Board of Fire Underwriters; the preparation of working drawings for heating and wiring contracts.

Will not be given for les than ten students.

Architecture e12—Specifications. Credit V. 3 points Spring Session. Mr. Pond

7-7:50 p. m., Monday and Wednesday, Fee \$18

An explanation of the general law of contracts; the different ways of preparing specifications for estimates, with the advantages and disadvantages of each; instructions to bidders; general clauses; rules to be observed in writing specifications and the different methods of arranging clauses.

Architecture e15-16—Building materials and construction. Credit V. 3 points each Session. Mr. WALSH

8-8:50 p. m., Tuesday and Thursday. Fee \$18 each Session

Properties and tests of building materials. Carpentry, slow-burning construction, steel and iron construction, masonry, fireproofing, reinforced concrete and their appearance in buildings.

Architecture e19-20—Architectural engineering. Credit V. 3 points each Session. Mr. Pond

8-8:50 p. m., Monday and Wednesday. Fee \$18 each Session

Steel construction. The design of beams, girders and columns, and by graphical analysis of roof trusses, piers, arches and retaining walls.

Architecture e27—Ancient architecture. Credit I. 2 points Winter Session. Mr. Hopkins

4-4:50 p.m., Tuesday and Thursday. Fee \$12

The ancient architecture of Egypt, Assyria, Persia, Greece and Rome.

Architecture e28—Medieval architecture. Credit I. 2 points Spring Session. Mr. HOPKINS

4:10-5 p. m., Tuesday and Thursday. Fee \$12

Early Christian and Byzantine architecture; the Romanesque and Gothic styles in Italy, France, England, Germany, Spain and the Netherlands; analytical and critical discussion of the historic development, characteristics and chief examples of the medieval styles.

### [Architecture e29—Renaissance architecture

Will not be given in 1917-1918; will be offered in 1918-1919]

## [Architecture e30—Renaissance and modern architecture

Will not be given in 1917-1918; will be offered in 1918-1919]

Architecture e31-32—Ancient ornament. Credit I, V. I point each Session. Mr. Hamlin

6-6:50 p. m., Friday. Fee \$6 each Session

General classifications; origins, primitive and savage ornament; the historic ornament of Egypt, Assyria, Persia, Greece and Rome, including Ægean, Cypriote, Phoenician and Etruscan ornament; the development of the styles, the common motives and patterns of both architectural ornament and the minor arts.

No credit will be given for Architecture e31-32 unless taken with one other course.

Architecture e33-34—Medieval ornament. Credit I, V. I point each Session. Mr. Hamlin

6-6:50 p. m., Tuesday. Fee \$6 each Session

The ornament of the Early Christian, Byzantine, Romanesque and Gothic styles both in architecture and the minor arts; the development of styles, motives and patterns.

No credit will be given for Architecture e33-34 unless taken with one other course.

### |Architecture e35-36-Modern ornament

Will not be given in 1917-1918; will be offered in 1918-1919]

### [Architecture e51—Principles of planning

Will not be given in 1917-1918; to be offered in 1918-1919]

## [Architecture e52—Principles of composition

Will not be given in 1917-1918; to be offered in 1918-1919]

Architecture e71-72—Drawing. Credit V. 2 points each Session. Professor HARRIMAN

8-9:40 p. m., Monday and Thursday. Fee \$12 each Session

Drawing in outline; isometric; from cast, pencil and charcoal. Architecture e71 is prescribed for e72.

### Architecture e73-74—Water colors

Will not be given in 1917-1918; to be offered in 1918-1919]

Architecture e75-76—Drawing. Credit V. 2 points each Session. Professor Harriman

8-9:40 p. m., Monday and Thursday. Fee \$12 each Session

Advanced charcoal drawing from cast. Pen and ink. Prerequisite: Architecture e71-72, or its equivalent.

### [Architecture e77-78—Life drawing

Will not be given in 1917-1918; to be offered in 1918-1919]

Architecture e80—Drawing. Credit V. 2 points Spring Session. Professor HARRIMAN

8-9:40 p. m., Monday and Thursday. Fee \$12

Drawing in outline; isometric; from cast, pencil and charcoal. Architecture e71 repeated in Spring Session.

Architecture e82—Modeling. Credit V. 2 points Spring Session. Mr. Gregory

1-3:40 p. m., Saturday. Fee \$12

Modeling in clay from architectural details of ornament.

## Architectural Design

The courses in architectural design are conducted on the basis of a progressive series of problems and sketches. These are assigned in the form of programs issued at stated intervals. The work of the students, delivered at a designated time, is passed upon by a jury of architects, the whole program being in this respect identical with that of the Society of Beaux-Arts Architects. A registration fee of two dollars is required by this Society; this must be paid to the Chairman of the Committee on Education, 126 East 75th Street, New York City. More detailed information on this head will be found in a special folder to be obtained in Room 401 Avery Hall.

Tuition Fees for Design. The tuition fee in design, regardless of course, is \$25 per Session. Tuition fees are under no conditions returnable even though the full Session's work is not taken. Students are advanced in accordance with the regulations of the Society of Beaux-Arts Architects on the basis of values obtained.

Note. The full fee covers registration for six regular problems of the Beaux-Arts Society. No additional fee is required for ten-hour sketches or for archæology or measured drawing problems. Upon previous application to Curator Bach, 401 Avery Hall, qualified students may also be admitted without additional fee to other problem competitions conducted by the School of Architecture.

Sketches and problems will be accepted only after tuition fees have been paid as indicated above.

Prerequisites for all courses. Work in the elements of architecture and shades and shadows, corresponding respectively to Architecture e1, e2, and e5, or their equivalents, such equivalents to be determined by Mr. Ware before registration. Those who wish subsequently to transfer their credits to the records of the School of Architecture must also submit descriptive geometry, Architecture e6, or its equivalent.

Students may meet the instructors on September 22 and September 29 at 2 p. m., and on September 26 at 8 p. m., in Room 202 Avery.

Architecture e61-62—Elementary design. Credit V.\* 20 hours. Associate Ware, Mr. Corbett and Mr. Schulz

Fee, see above

Major and minor problems corresponding to the Class B Analytique Problems of the Society of Beaux-Arts Architects.

Architecture e63-64—Intermediate design. Credit V.\* 20 hours. Associate Ware, Mr. Corbett and Mr. Schulz

Fee, see above

Major and minor problems corresponding to the Class B Problems (Projets) of the Society of Beaux-Arts Architects.

Architecture e65-66—Advanced design. Credit V.\* 20 hours. Associate Ware, Mr. Corbett and Mr. Schulz

Fee, see above

 $\textbf{Major and minor problems corresponding to the Class A Problems (Projets) of the Society \textbf{of Beaux-Arts Architects.}}$ 

Architecture e67-68—Thesis. Credit V. 4 points either Session. Associate Ware, and Mr. Corbett

Fee \$24

An important final problem in design. Instructions will be sent to those qualified.

#### ASTRONOMY

Astronomy e1—Introduction to the science. Credit I. 2 points Winter Session. Mr. Brainin

7:10-9 p. m., Friday. Fee \$12

This course consists of a non-mathematical explanation of the simpler phenomena under everyday observation in the heavens. Among the topics considered are: The constellations and aids to the naked-eye recognition of the stars; the subjects of time and navigation; the earth and moon, their relation to each other and to the solar system and the universe; the sun, its spots and prominences; the planets, individually and as members of the solar system; the question of their habitability; eclipses, comets and meteors; the stars, their motions and compositions; the nebulæ and their relation to cosmic hypotheses.

Frequent use will be made of the equatorial telescope and other instruments of the observatory as well as of the Department's large collection of lantern slides.

Text-book: Jacoby's Astronomy.

\*Students desiring credit for this course in the School of Architecture must submit a complete set of drawings done in Extension Teaching up to the time of the application for transference of credit and bearing the attestation of the instructor in charge. Requests for such transference of credit should be made to Mr. R. F. Bach, Curator of the School of Architecture, or left in writing for him at the office of the Director of Extension Teaching. The difference in tuition fees must be paid.

Astronomy e2—Introduction to the science. Credit I. 2 points Spring Session. Mr. Brainin

7:10-9 p. m., Friday. Fee \$12

Astronomy er repeated in the Spring Session.

### BOOKKEEPING

Bookkeeping e1-2—Secretarial bookkeeping. 2 points each Session. Mr. C. C. Hughes

9:20-11 a.m., Saturday. Fee \$12 each Session

A knowledge of bookkeeping is not required of students taking this course. The purpose is to prepare the student to keep the books of the professional man as well as to interpret the books of a modern business. From the study of a few simple accounts the work will proceed to a drill in double entry as applied to a trading concern. Exercises in single entry as applied to the professions of law and medicine will be prepared. Some of the special features of this course will include the preparation of various business forms and reports; the analysis of accounts and financial statements; the preparation of bank reconcilements; the study of household and hotel accounts; the accounts of institutions, such as libraries, hospitals, clubs and associations.

Bookkeeping e4—Secretarial bookkeeping. 2 points Spring Session. Mr. C. C. Hughes

4-5:40 p. m., Wednesday. Fee \$12

This course, beginning in February, is equivalent to the Winter Session of the preceding course and is planned for secretarial students who have never studied bookkeeping. It should be followed in September by Course e5.

Bookkeeping e5—Advanced secretarial bookkeeping. 2 points Winter Session. Mr. C. C. Hughes

4-5:40 p. m., Wednesday. Fee \$12

A continuation of Course e4 for students who began the study of bookkeeping in February and for those who already have some acquaintance with the subject.

### **BOTANY**

Botany e1-2—Nature and development of plants. Lectures and laboratory. Credit I, IV. 4 points each Session. Dr. Dodge and Mr. Nixon 4-6:30 p. m., Tuesday and Friday. Fee \$24 each Session

Organs, structure and work of the plant; development of plant life through an examination of the important biologic types.

Botany e1a-2a—General botany. Lectures and laboratory. Credit I, IV. 2 points each Session. Dr. Dodge and Mr. Nixon

1:10 p. m., Saturday; 2:10-4 p. m., laboratory. Fee \$12 each Session Equivalent to Botany e1-2 if taken for two years.

Botany e3-4—Edible and poisonous fungi. Credit IV. 2 points each Session. Dr. Dodge

2:10 p. m., Saturday; 3-4 p. m., laboratory. Fee \$12 each Session

Laboratory work on the identification of the common types with field excursions for collecting and photographing specimens.

Botany e5-6—Students having completed the preceding courses may continue their work by registering for this class, the hours and character of the work to be determined upon consultation with Professor HARPER. Credit I. 2 points each Session. Fee \$12 each Session

### BUSINESS

### Business

### Undergraduate Courses

Business e7-8—Business organization and administration. Credit IX. 2 points each Session. Fee \$12 each Session. Professor HAIG

Section 1-4:30-6:10 p. m., Tuesday

Section 2-7:40-9:30 p. m., Tuesday

A brief survey of the development of business enterprise. A comparison of the individua proprietorship, the partnership and the corporation. The structure and organization of corporations; where to incorporate; the charter; organization meetings; selection of officers; proxies; voting trusts, standing committees, etc Principles of organization, line and staff, etc. Factors influencing location and construction of plants. Purchasing and receiving; stores and perpetual inventories. Problems of employment and welfare work. Production routine; special wage systems; 'scientific' management and 'efficiency' movement. Credits and collections; sales organization; advertising department; traffic and shipping; office organization; graphic records, etc.

The course is designed as a general survey of modern business procedure.

Business e13-14—Advertising display. 2 points each Session. Mrs. HUBBART

7:40-9:30 p. m., Wednesday. Fee \$12 each Session

This is a practice course in advertising layouts, supplemented by lectures on the attentionvalue of display and arrangement as applied to advertising. It deals principally with methods of reflecting the advertising idea pictorially and adjusting it to the nature of the goods advertised and the treatment of the text-matter of the advertisement. Students are given assignments designed to enable them to link powerfully together the sales, advertising, and merchandise value of the advertisement.

Given in conjunction with the courses in commercial art and practical and advanced advertising.

Business e15—Practical advertising. Credit IX. 2 points Winter Session. Mr. Hubbart

7:40-9:30 p. m., Tuesday. Fee \$12

Primarily this course deals with the theory, technique and practice of advertising, with the object of giving the student a definite idea of the nature of advertising as a factor in business and a fair understanding of its use and value in the promotion of sales. The course is conducted, however, as an idea class with the purpose of studying the origin of salesbuilding ideas and how they may be applied to copy designed for use in creating sales. To this end assignments are given in the formulation of campaigns; copy and ideas are analyzed to discover their proper adjustment to the selling problems incidental to the marketing of prescribed commodities. All class discussions are based on copy and ideas turned in by the student. Particular attention is devoted to the special features of retail publicity, and the fundamental aspects of national, consumer, class, trade and technical advertising are discussed in detail.

Students are advised to take Psychology of advertising and Business English as parallel courses.

Business e16—Advanced advertising. Credit IX. 2 points Spring Session. Mr. Hubbart

7:40-9:30 p. m., Tuesday. Fee \$12

Advertising viewed as a factor in building business for a prescribed commodity. The course deals primarily with details of campaigns, plans, costs, methods, media and problems in circulation.

Prerequisite: Business e15 or equivalent.

Business e16a—Practical advertising. Credit IX. 2 points Spring Session. Mr. Hubbart

7:40-9:30 p. m., Monday. Fee \$12

Identical with Business e15, but offered in the Spring Session.

Business e19—Salesmanship. Credit IX. 2 points Winter Session. Mr. Hubbart

7:40-9:30 p. m., Thursday. Fee \$12

Selling and the prime essentials of salesmanship are considered in this course. The student is given a grounding in the principles of selling and practice in the presentation of a selling proposition from its inception in the customer's mind throughout its development and final consummation as a sale.

The distinct forms of sales are illustrated with typical problems in selling at retail, wholesale, the marketing of specialties and problems in promotion. The student is familiarized with the essential features in the linking of sales and advertising campaigns in the creation and development of business backgrounds.

The ultimate aim of this course and of Business e15 and e16 is to fit the student to analyze market problems and to apply to them the proper principles and methods of advertising and selling.

# Business e21-22—Commercial art. 2 points each Session. Mr. Link 7:40-9:30 p. m., Friday. Fee \$12 each Session

Given in conjunction with the courses in practical and advanced advertising. It deals with the principles of display and arrangement in their relationship to the completed idea and the finished advertisement.

Students are directed in the work of suggesting sketches and illustrations to fit the needs of the campaign and the commodity advertised. To this end they may make layouts for newspapers, magazines, periodicals, billboards, street-car cards, posters, catalogues and booklets under the direction of the art instructor and the advertising instructor.

See also Psychology of advertising, p. 33, and Business English, p. 53.

Business e23-24—First year accounting. Credit IX. 2 points each Session. Fee \$12 each Session. Messrs. Baltz, Barber, Bickell, Dohr, Neubauer and Seward

Section 1-7:40-9:30 p. m., Monday

Section 2-7:40-9:30 p. m., Monday

Section 3-7:40-9:30 p. m., Tuesday

Section 4-7:40-9:30 p. m., Wednesday

Section 5-7:40-9:30 p. m., Thursday

Section 6-7:40-9:30 p. m., Friday

This course develops the subject rapidly, devoting its time and emphasis to the foundational problems of accounting. It is built up along the lines and methods of modern accounting practice. The subject matter includes: theories of debit and credit; classification of accounts; underlying principles of the various accounting records; business papers and documents used as the basis for first entry; simpler problems of the balance sheet and income statement; single entry; controlling accounts; handling sales and purchases; safeguarding the cash; consignments; and related topics. Ample practice for students is provided. It is prerequisite to all the other courses in accounting.

Business e23a—First year accounting. Credit IX. 2 points Winter Session. Mr. Baker

7:40-9:30 p. m., Thursday. Fee \$12

Identical with Business e24, but offered in the Winter Session for the benefit of those who have had Business e23.

Business e24a—First year accounting. Credit IX. 2 points Spring Session. Fee \$12. Messrs. Baker and C. C. Hughes

Section 1-7:40-9:30 p.m., Thursday

Section 2-7:40-9:30 p. m., Wednesday

Identical with Business e23, but offered in the Spring Session for those beginning the study of accounting.

Business e25-26—Second year accounting. Credit IX. 2 points each Session. Fee \$12 each Session. Messrs. Dohr, J. F. Hughes and Koopman

Section 1-7:40-9:30 p. m., Monday

Section 2-7:40-9:30 p. m., Tuesday

Section 3-7:40-9:30 p. m., Thursday

A thorough study of the corporation and its related problems is the chief aim of the first half of the course. Some of the topics covered are: records and accounts peculiar to a corporation; elements of manufacturing accounts; perpetual inventory; voucher system and payroll methods; theories of the balance sheet; its make-up, form and arrangement; valuation of assets in the balance sheet; depreciation; showing of liabilities; valuation of capital stock; profits; dividends; reserves and surplus; sinking and other funds; income summary and problems connected therewith; liquidation of a corporation; consolidations and mergers; branch house accounting; fire loss adjustments; hypothecation of accounts receivable; etc.

Practice work for the Winter Session will consist of data in corporation manufacturing accounting for record in blanks and of correlated problems.

The work of the Spring Session will consist of carefully classified and graded problems, supplemented by lectures and demonstrations.

Prerequisite: Business e23-24.

Business e25a—Second year accounting. Credit IX. 2 points Winter Session. Mr. KOOPMAN

7:40-9:30 p. m., Friday. Fee \$12

Identical with Business e26, but offered in the Winter Session.

Prerequisite: Business e25.

Business e26a—Second year accounting. Credit IX. 2 points Spring Session. Mr. KOOPMAN

7:40-9:30 p. m., Friday. Fee \$12

Identical with Business e25, but offered in the Spring Session.

Prerequisite: Business e23-24.

Business e27-28—Cost accounting. Credit IX. 2 points each Session. Fee \$12 each Session. Messrs. Howard and Rohrbach

Section 1—7:40–9:30 p. m., Wednesday

Section 2-7:40-9:30 p. m., Friday

The work of the Winter Session will consist of: Elements of costs; principles and general methods of cost finding; direct and indirect costs; direct and indirect expenses; wage systems; recording material and labor costs; compiling the cost data; control of cost records by financial books.

The work of the Spring Session will consist of: Examination of plants; devising of cost systems; estimating of cost systems; departmental cost systems; special order systems according

to productive labor and machine cost plans; productive systems according to productive labor and machine cost plans.

Should be taken as a parallel course with Business e25-26.

Prerequisite: Business e23-24.

### For other courses in accounting, see p. 33

## Business e39-40—Agricultural economics. Credit IX. 2 points each Session, Professor Larson

4:10-5 p. m., Monday and Thursday. Fee \$12 each Session

A study of agricultural problems from the economic standpoint. The principles of production and marketing of farm products are discussed; the course includes such subjects as land conditions, values, and development; land rents; size of farms and significance; intensive and extensive methods; farm labor, wages and profits; agricultural credit; the place of live stock in agriculture; and the costs of production; the various methods of marketing and farmers' organizations; cooperative manufacturing; buying; selling and distribution; butter, egg and cheese exchanges; fruit and produce exchanges and auctions, and the functions of the various marketing agencies.

## Business e45-46—Corporation finance. Credit IX. 2 points each Session. Professor Lyon

### 7:40-9:30 p. m., Monday. Fee \$12 each Session

This course will follow the syllabus of the Investment Bankers Association.

For the Winter Session the course will present the variations of risk and income and control of corporation effects through the issuance of its securities; principles governing the issuance and proportions of classes of securities of a corporation, or the plan of capitalization, financial situations which lead to the issuance of particular forms of securities, the organization of subsidiaries, assumed bonds and guaranteed securities; leases; securities issued for mergers, combinations and consolidations; amortization of debt; the preparation of securities with relation to the market.

In the Spring Session the course will discuss the finding of funds for the capital account; financing through an appeal to the stockholders and stockholder's "rights"; work and methods of the banking houses in financing corporations and inducing capitalists to commit funds to the enterprise; making a "market," syndicate transactions, joint accounts and underwritings; management of incomes; financing of receiverships, readjustments of the capital account and reorganizations.

### Business e61—Elementary business arithmetic. 2 points Winter Session. Mr. VAN TUYL

7:40-9:30 p. m., Tuesday. Fee \$12

A thorough review of fundamental operations as applied to everyday business transactions, particular attention being given to simple, short, practical methods of calculation. Special topics considered are: Aliquot parts as applied to multiplication, division, percentage and interest; rapid calculations; checking results; fundamental principles of arithmetic as used in the solution of problems; practical measurements; graphs; percentage and its applications; bank discount. This course is planned to meet the needs of teachers of business arithmetic and of clerks and others desiring to become more efficient in arithmetical work.

# Business e62—Business mathematics. 2 points Spring Session. Mr. VAN TUYL

## 7:40-9:30 p. m., Tuesday. Fee \$12

This course presupposes a working knowledge of elementary business arithmetic and will include such topics as insurance, taxes, sinking funds, stocks, bonds, exchange, United States customs and equation of accounts. Calculating tables will be introduced and used in solving problems. The work is designed to be helpful to teachers of business arithmetic in secondary schools and in private business schools; also to accountants and others in banks and brokerage houses.

Business e73-74—Contracts. Credit IX. 2 points each Session. Professor GIFFORD

7:40-9:30 p. m., Thursday. Fee \$12 each Session

This course aims to furnish an exposition of the fundamental principles of the law of contracts, including parties, subject matter, the essentials of mutual assent, formal requisites, consideration, construction, discharge and consequences due to breach of contract.

Text-book: Ashley's Cases on Contracts.

Business e75—Corporation law. Credit IX. 2 points Winter Session. Professor Wormser

7:40-9:30 p. m., Tuesday. Fee \$12

This course deals with the nature and formation of private corporations; their management, including the issue and transfer of stock, the rights and liabilities of promoters, stockholders and directors; the proper method of holding corporate meetings and keeping the records thereof; the taxes required of an ordinary business corporation.

Text-book: Canfield and Wormser's Cases on Corporations.

Business e76—Negotiable instruments. Credit IX. 2 points Spring Session. Mr. Currier

7:40-9:30 p. m., Wednesday. Fee \$12

The object of this course is to acquaint students with the history of negotiable paper and to give them a correct idea of the legal principles governing the rights and duties of the various parties to it. It is not intended for law students but for persons who intend to engage in business. An attempt will be made to discuss the everyday questions which confront the business man in his use of bills, notes and checks and to teach the student how to solve them.

Text-book: Smith and Moore's Cases on Bills and Notes.

Business e77-78—Life insurance. Credit IX. 2 points each Session. Professor Huebner

5:30-7:20 p. m., Friday, 203 Broadway, near Fulton Street. Fee \$12 each Session

Family, personal, and business uses of life insurance; a thorough analysis of term, whole life and limited payment policies, endowment insurance, income policies, annuities and group insurance; an analysis of the net and single premium, the reserve, loading, surrender values, policy loans, surplus and dividends; insurance of impaired lives; stock versus mutual life insurance; investment of life insurance funds; a thorough analysis of the law of life insurance as it affects the interpretation of the contract, insurable interest, the beneficiary, and assignment of policies.

Business e81—Casualty insurance. Credit IX. 2 points Winter Session. Dr. Blanchard

5:30-7:20 p. m., Thursday, 203 Broadway, near Fulton Street. Fee \$12

Devoted principally to the development of employer's liability and to the principles and practices of workmen's compensation and its insurance; compensation insurance organizations, contracts, rates and rating, and reserves. Other leading forms of casualty insurance such as accident and health insurance, automobile insurance, steam boiler insurance, etc.

Business e82—Fire insurance. Credit IX. 2 points Spring Session. Dr. BLANCHARD

5:30-7:20 p. m., Thursday, 203 Broadway, near Fulton Street. Fee \$12

Functions, principles, and practices; policy contracts, organization.

Business e85-86—Latin-American commercial law. Credit IX. 2 points each Session. Mr. Obregon

7:40-9:30 p. m., Thursday. Fee \$12 each Session

A general idea of the history of Latin-American countries as a means of understanding their legislation, and particularly, their commercial law.

First, the legal condition of merchants; the constitution of commercial companies and their different characters; the rights and obligations of stockholders, and of those who organize and administer corporations; the rights of agents and attorneys. Second, the requisites and fulfilment of contracts; negotiable instruments; foreign exchange. Third, administration of justice and judicial procedure; bankruptcy or insolvency. Fourth, the institutions and laws of commerce in relation to banks, coinage, postal service and customs duties; regulations as to imports and exports; laws applying to patents and copyrights; laws relating to public lands and to mines; the consular service.

Business e89-90—History of American commerce. Credit IX. 2 points each Session. Professor VAN METRE

7:40-9:30 p. m., Friday. Fee \$12 each Session

Origin and development of the foreign and domestic commerce of the United States; change in business organization; character of commercial policy; influence of commercial conditions on political history; the problems of commercial expansion.

Business e91-92—Commercial geography. Credit I, IV. 2 points each Session. Mr. LOBECK

7:30-9:20 p. m., Wednesday. Fee \$12 each Session

This course is concerned with a study of the leading industrial and commercial activities of the great nations, with especial reference to the United States. The physical conditions which influence the production of raw materials, the development of manufacturers, the laying out of routes of trade and the location of markets are first considered, and emphasis is then placed upon the production and distribution of the materials which enter into food, clothing and shelter.

Business e97—International trade. Credit IX. 2 points Winter Session. Dr. MacElwee

5:10-6:50 p. m., Tuesday, 203 Broadway, near Fulton Street. Fee \$12 General course on international foreign commerce and national resources.

Business e98—Foreign salesmanship. Credit IX. 2 points Spring Session. Dr. MacElwee

5:10-6:50 p. m., Tuesday, 203 Broadway, near Fulton Street. Fee \$12

Methods of marketing in foreign lands. Methods of successful American and foreign commercial houses analyzed. Cooperation in foreign trade.

#### Graduate Courses

These courses are open to qualified students without restriction.

Business e107-108—Advanced business organization and administration. Credit II, IX. 3 points each Session. Professor HAIG

4:10-6 p. m., Thursday. Fee \$18 each Session

This course is designed to afford a more detailed and thorough examination of some of the problems of business organization and administration than is possible in the elementary course (Business e7-8).

The topics to be considered will be definitely fixed only after consultation with the members of the class, but it is expected that special emphasis will be placed upon the problems involved in the relationship of the management to the labor force, including the selection, training and remuneration of workers, welfare work, and subjects of a similar nature.

This course is open only to those who have completed the elementary course, Business e7-8, or who secure the consent of the instructor by demonstrating their fitness to pursue the work with profit.

Business e117-118—Psychology of advertising and selling. Credit II, IX. 3 points each Session. Professor HOLLINGWORTH

7:40-9:30 p. m., Monday. Fee \$18 each Session

Application of psychological principles and experimental methods to the problems of appeal and response in advertising and selling. Analysis and evaluation of the methods and devices of publicity on the basis of (1) the known facts of human nature; (2) detailed examination of actual advertising campaigns and the analysis of their results; (3) the application of laboratory and statistical technique; and (4) comparative study of old and new methods of marketing. The material for the entire course is based upon the findings of experimental investigation and the results of actual sales campaigns. Illustrated by lantern slides and current advertising material.

Business e129-130—Third year accounting. Credit II, IX. 2 points each Session. Mr. Boyce

7:40-9:30 p. m., Friday. Fee \$12 each Session

A course in advanced problems. The early part of the work will consist of specialized problems illustrating accounts and methods peculiar to various classes of enterprises. The later part will comprise selected C. P. A. and miscellaneous problems. The work of the classroom will be conducted by means of lectures, demonstrations, and reports.

A charge will be made for the problems.

Prerequisite: Business e25-26.

Business e131-132—Auditing, theory and practice. Credit II, IX. 2 points each Session. Professor Montgomery and Mr. Lingley

7:40-9:30 p. m., Thursday. Fee \$12 each Session

This course is for advanced students only. A text-book on auditing will be used as a basis for home assignments, and students will be expected to spend at least two hours each week preparing for the quiz which forms part of the classroom work. Students will be taught to prepare working audit programs for various classes of business. The principal object of this course will be to train and develop the analytical faculties of the students. Methods of accounting used by unsuccessful concerns will be explained and the causes of failure analyzed. Methods followed by concerns which need capital involving hypothecation of assets and manipulation of accounts with allied and subsidiary concerns will be discussed.

Prerequisite: Business e25-26.

Students can apply the essential underlying principles of auditing as developed in this course to practical work by taking Business e133-134 (laboratory) as a parallel course.

Business e133-134—Accounting laboratory. Credit II, IX. 2 points each Session. Fee \$12 each Session. Mr. BYRNES

Section 1-7:20-9:30 p. m., Monday

Section 2-7:20-9:30 p. m., Wednesday

This course consists of laboratory work exclusively. The material used will be the account books of various firms and corporations which have gone into bankruptcy or liquidation. These records present many interesting and complicated problems. Many sets of books are available offering a wide scope for analysis and investigation. Practical questions and problems compiled from these old records will be given to the student to answer and solve by an actual examination of the books.

These will give the student a practical working test under conditions which very closely correspond to those to be met in actual practice, and the course will be particularly advantageous to students who have had only a limited opportunity to examine books used by various classes of enterprises.

The laboratory also contains many blank forms, designed for different classes of enterprises. Prerequisite: Business e25-26 and the student should be pursuing Business e131-132 as a parallel course.

Two prizes, one of \$25 and one of \$15, offered by the New York State Society of Certified Public Accountants, will be awarded to students who take the evening course in the accountancy laboratory for the coming year. For information as to these prizes, consult Professor Montgomery.

Business e147-148—Investments. Credit II, IX. 3 points each Session. Mr. Veit

7:40-9:30 p. m., Tuesday. Fee \$18 each Session

This course will follow the syllabus of the Investment Bankers' Association.

The course will discuss tests of an investment and their application; real estate mortgages and realty mortgage bonds; government, state and municipal bonds, nature of their security and analysis of municipal statements; corporation securities and stocks; their claims on earnings and assets and the enforcement of these claims; mortgage bonds, debentures, financial notes, classes of stock, collateral securities and the value of guaranties from the viewpoint of the interests of the investor; special investment considerations of the securities of railroad, public service, hydro-electric and other classes of corporations; analysis of corporation reports and uses of the sources of investment information; classes of private investors and their needs; investments of commercial banks, savings banks, trust companies, insurance companies and trustees; when and how to make and how to care for investments.

Prerequisite: Business e45-46.

## [Business e165—Transportation accounting

Not offered in 1917-1918]

[Business e166—Railway law

Not offered in 1917-1918]

Business e167-168—Railway traffic and rates. Credit II, IX. 3 points each Session. Professor VAN METRE

5:20-7 p. m., Wednesday, 203 Broadway, near Fulton Street. Fee \$18 each Session

Organization and service of the traffic department; systems of rates and fares; accounting of freight and passenger train revenues; traffic problems, such as car service, demurrage, and claims.

Business e179-180—Insurance problems. Credit II, IX. 3 points each Session. Dr. Blanchard

3:10-4:50 p. m., Monday. Fee \$18 each Session

Investigation and discussion of existing and proposed schemes of insurance. Workmen's compensation, health insurance, unemployment insurance, disability insurance, old age pensions, maternity benefits, life insurance, property insurance, governmental and private agencies. Introductory lectures, followed by individual investigations and class reports.

Business e189—Ports and terminal facilities. Credit II, IX. 3 points Winter Session. Dr. MACELWEE

5:10-6:50 p. m., Monday. Fee \$18

A detailed study of marine terminal problems; of the coordination of land, river and ocean carriers. A study of the functions and physical aspects of the leading ports of the world. Several hundred illustrations (stereopticon).

Business e190—Theory and practice of ocean transportation. Credit II, IX. 3 points Spring Session. Dr. MacElwee

5:10-6:50 p. m., Monday. Fee \$18

The growth of ships and ship lines. A special study of the various types of ocean carriers, the cost of building and operating them and problems of ocean rate making. The routine of ocean shipping, shipping papers and ship papers, marine insurance, commissioners, brokers and agents. The American mercantile marine, past, present and future.

History e177—Latin America: people; government; resources. Credit II, IX. For those taking both hours, 3 points Winter Session. Professor Shepherd

7:30-8:20 p. m., lecture; 8:20-9:10 p. m., conference, Monday. Fee \$18

This course, followed by History e178, aims to supply the knowledge and cultivate the attitude of mind which may enable Americans to understand Latin Americans, appreciate their circumstances, work with them along the lines of material and intellectual progress, and contribute in general to the promotion of inter-American friendship and commerce.

History e178—Latin America: industry; transportation; commerce. Credit II, IX. For those taking both hours, 3 points Spring Session. Professor Shepherd

7:30-8:20 p.m., lecture; 8:20-9:10 p.m., conference, Monday. Fee \$18 See description of History e177.

#### Economics

Economics e1-2—Principles of economics. Credit I, IV. 3 points each Session. Fee \$18 each Session. Professor McCrea, Professor Van Metre and Dr. Blanchard

Section 1-7:30-10 p. m., Saturday

Section 2-7:30-10 p. m., Wednesday

Section 3-4:30-5:45 p. m., Wednesday and Friday

Economics is the study of business activity from the standpoint of public welfare. This course undertakes, first, to explain the present-day organization and operation of industry, and, second, to consider how far the present situation needs correction from the standpoint of efficiency in production and justice in distribution. The year's work is concerned with an historical and analytical study of the principles and with practical economic problems, such as the tariff, money and banking, monopolies, the labor problem, etc.

The course presupposes some knowledge of European and American history.

Economics e1a—Principles of economics. Credit I, IV. 3 points Winter Session. Mr. Robinson

7-9:30 p. m., Wednesday. Fee \$18

The purpose of this course is to acquaint the student with the fundamental facts underlying national economic problems. Each problem will be treated in its historical perspective. Starting with a brief description of modern economic organization, the course will consider the class struggle and the significance of socialism. Among the topics are the principles of money and banking, anti-trust legislation; railways, their development, charges, and regulation; international trade; wages and standards of life of American wage-earners. Present-day tendencies in political and economic development, such as the conservation of national resources and the regulation of public utilities will be analyzed.

Corresponding to Economics e2 but given in the Winter Session.

• Economics e2a—Principles of economics. Credit I, IV. 3 points Spring Session. Fee \$18. Mr. ROBINSON

Section 1-4:30-5:45 p. m., Tuesday and Friday

Section 2—7–9:30 p. m., Wednesday

Economics er repeated in the Spring Session for new students. A beginning class.

For other courses in economics see p. 66

#### CHEMISTRY

Chemistry eA1—General chemistry. Elementary course for students beginning the study of chemistry. 2 lectures, I recitation and 2 hours' laboratory

practice a week. Credit I, IV. 4 points Winter Session. Professor Neish and assistants

7-9:50 p. m., Tuesday, and 7-8:50 p. m., Friday. Fee \$24

Lecture, 7-7:50 p.m., Tuesday and Friday

Recitation, 8-8:50 p.m., Friday

Laboratory, 8-9:50 p.m., Tuesday

This course is the duplicate of the day course Ar. It is prerequisite to the other courses in chemistry given in Extension Teaching and to the first-year chemistry in the combined six-year College and Engineering course.

Deposit for breakage, \$15.

Text-books: Smith's Elementary Chemistry and Laboratory Outline (interleaved).

Chemistry eA2—General chemistry. Course eA1 repeated in the Spring Session for students desiring to begin in February. Credit I, IV. 4 points Spring Session. Mr. HAESELER and assistants

7-9:50 p. m., Tuesday, and 7-8:50 p. m., Friday. Fees as for Chemistry eAr above

Lecture, 7-7:50 p.m., Tuesday and Friday

Recitation, 8-8:50 p. m., Friday

Laboratory, 8-9:50 p. m., Tuesday

Chemistry e3-4—General inorganic chemistry. 3 hours' classroom and 6 hours' laboratory work a week in each Session. Credit I, IV, V. 5 points each Session. Identical in content and credit with Chemistry e6-7. Mr. HAESELER and assistants

7-9:50 p. m., Tuesday, Wednesday and Friday. Fee \$30 each Session

Lecture, 9-9:50 p.m., Tuesday, Wednesday and Friday

Laboratory, 7-8:50 p.m., Tuesday, Wednesday and Friday

Deposit for breakage, \$15 each Session.

Prerequisite: Chemistry eA1, eA2, or the equivalent, and elementary physics.

Chemistry e6—General inorganic chemistry. 3 hours' classroom and 6 hours' laboratory work a week. Credit I, IV, V. 5 points Spring Session. Professor Neish and assistants

7-9:50 p. m., Tuesday, Wednesday and Friday. Fee \$30

Lecture, 7-7:50 p.m., Tuesday, Wednesday and Friday

Laboratory, 8-9:50 p. m., Tuesday, Wednesday and Friday

This course, which presupposes a knowledge of general chemistry (eA1), continues the study of general chemistry, with particular reference to giving a greater knowledge of descriptive chemistry and a more advanced and systematic discussion of general principles and their applications. This course followed by Chemistry e7 aims thus to prepare the student for the courses in organic chemistry or in qualitative analysis. It is equivalent to Chemistry 6—required of all first-year students in the combined six-year College and Engineering course, or to Chemistry 3—.

Deposit for breakage, \$15.

Text-books: Smith's Introduction to Inorganic Chemistry and Laboratory Outline.

Prerequisite: Chemistry eAI or eA2 or the equivalent.

NOTE. Chemistry eAr followed by Courses e6-7 or e3-4, err, and e45-46 are accepted for admission to the College of Physicians and Surgeons.

Chemistry e7—General inorganic chemistry. 3 hours' classroom and 6 hours' laboratory work a week. Credit I, IV, V. 5 points Winter Session. Mr. HAESELER and assistant

7–9:50 p. m., Tuesday, Wednesday and Friday. Fee \$30 Lecture, 7–7:50 p. m., Tuesday, Wednesday and Friday Laboratory, 8–9:50 p. m., Tuesday, Wednesday and Friday

This course is a continuation of Chemistry e6. It is equivalent to Chemistry -7 required of all second-year students in the combined six-year College and Engineering course, or to Chemistry -4.

Deposit for breakage, \$15.

Prerequisite: Chemistry e6 or e3 or the equivalent.

Chemistry e11—Qualitative analysis. 2 hours' classroom and 6 hours' laboratory work a week. Credit I, IV, V. 5 points Winter Session. Mr. Andrews 7–9:50 p. m., Tuesday and Wednesday; and 7–8:50 p. m., Friday. Fee \$30 Lecture, 7–7:50 p. m., Tuesday and Friday

Laboratory, 8-9:50 p. m., Tuesday; 7-9:50 p. m., Wednesday; and 8-8:50 p. m., Friday

A systematic course in the theory and practice of inorganic qualitative analysis based upon the principles of modern chemistry. It is equivalent to Chemistry 14- required of all second-year students in the combined six-year College and Engineering course, or to Chemistry 11-.

Deposit for breakage, \$15.

Text-book: Steiglitz' Qualitative Analysis, Pt. I.

Prerequisite: Chemistry e6-7, 6-7, e3-4 or 3-4.

NOTE. Students who have previously completed the greater part of this course may, with the consent of the Director, register for the remainder, counting it 1 to 3 points.

Chemistry e12—Qualitative analysis. I hour classroom and 6 hours' laboratory work a week. Credit I, IV, V. 4 points Spring Session. Mr. Andrews 7–9:50 p. m., Tuesday; 7–8:50 p. m., Wednesday and Friday. Fee \$24 Lecture, 7–7:50 p. m., Wednesday

Laboratory, 7-9:50 p. m., Tuesday; 8-8:50 p. m., Wednesday; and 7-8:50 p. m., Friday

This course is a continuation of Chemistry e11. It is equivalent to Chemistry -15 required of all third-year students in the combined six-year College and Engineering course, or to Chemistry -12.

Deposit \$15.

Text-book: Steiglitz' Qualitative Analysis, Pt. I.

Prerequisite: Chemistry e14, 14- or -12.

NOTE. Students who have previously completed the greater part of this course may with the consent of the Director, register for the remainder, counting it I to 3 points.

Chemistry e14—Qualitative analysis. 2 hours' classroom and 6 hours' laboratory work a week. Credit I, IV, V. 5 points Spring Session. Mr. Andrews 7–9:50 p. m., Tuesday and Wednesday and 7–8:50 p. m., Friday. Fee \$30 Lecture, 7–7:50 p. m., Tuesday and Friday

Laboratory, 8-9:50 p.m., Tuesday; 7-9:50 p.m., Wednesday; and 8-8:50 p.m., Friday

Identical with Chemistry eII, but given in the Spring Session. Should be followed by Chemistry e15.

Prerequisite: Chemistry e6-7, 6-7, e3-4 or 3-4.

Chemistry e15—Qualitative analysis. I hour classroom and 6 hours' laboratory work a week. Credit I, IV, V. 4 points Winter Session. Mr. Andrews 7-9:50 p. m., Tuesday; 7-8:50 p. m., Wednesday and Friday. Fee \$24

Lecture, 7-8:50 p.m., Wednesday

Laboratory, 7-9:50 p.m., Tuesday; 8-8:50 p.m., Wednesday; and 7-8:50 p.m., Friday

Identical with Chemistry e12, but given in the Winter Session. Should be followed by Chemistry e72.

Prerequisite: Chemistry e14 or e11.

Chemistry e45-46—Organic chemistry. Short course. 1½ hours' class-room and 3 hours' laboratory work a week in each Session. Credit I, IV. 3 points each Session. No credit for Chemistry e45 or e46 separately. Dr. Fisher and assistant

7-9:15 p. m., Tuesday and Friday. Fee \$18 each Session

Lecture, 7-7:40 p.m., Tuesday and Friday

Laboratory, 7:40-9:15 p.m., Tuesday and Friday

A brief survey of the more important classes of organic compounds.

Deposit for breakage, \$25 each Session.

Prerequisite: Chemistry e<sub>3</sub>-4, e<sub>6</sub>-7, or the equivalent, and elementary physics. Chemistry e<sub>11</sub> or e<sub>14</sub> is recommended also.

Equivalent to Chemistry 46.

Chemistry e71—Quantitative analysis, inorganic. 2 hours' classroom and 7 hours' laboratory work a week. Credit I, IV. 5 points Winter Session. Mr. STILLMAN

7-9:50 p.m., Tuesday, Wednesday and Friday. Fee \$30

Lecture, 7-7:50 p.m., Wednesday and Friday

Laboratory, 7-9:50 p.m., Tuesday, and 8-9:50 p.m., Wednesday and Friday

Short course, including typical volumetric, gravimetric, electrolytic and gasometric methods. Deposit for breakage, \$15.

Prerequisite: Chemistry e14-15, 14-15, e11-12 or 11-12.

Chemistry e72—Quantitative analysis, inorganic. 2 hours' classroom and 7 hours' laboratory work a week. Credit I, IV. 5 points Spring Session. Mr. STILLMAN

7-9:50 p. m., Tuesday, Wednesday and Friday. Fee \$30

Lecture, 7-7:50 p.m., Wednesday and Friday

Laboratory, 7-9:50 p.m., Tuesday; and 8-9:50 p.m., Wednesday and Friday

Identical with Chemistry e71, but given in the Spring Session.

Deposit for breakage, \$15.

Prerequisite: Chemistry e11-12, e14-15, 14-15 or 11-12.

### CONTEMPORARY LITERATURE

Contemporary literature e1-2—Modern European literature. Lectures, readings and discussions. 2 points each Session. Dr. Brewster

4:30-5:45 p. m., Wednesday. Fee \$12 each Session

The course will deal with contemporary European literature. During the Winter Session the work will center upon Russian literature, considering in some detail the attitude toward life and art of the leading Russian novelists and short-story writers, Gogol, Tolstoy, Dostoievsky, Turgenev, Chekhov, and others. Lectures on Scandinavian and German literature, especially the drama, will complete the work of the Winter Session. The Spring Session will include the study of recent English, French, and Italian literature. Readings will be assigned, and if possible, some class discussions held.

Contemporary literature e4—Modern Russian literature. Lectures, readings and discussions. 2 points Spring Session. Dr. Brewster

3:10-4:25 p. m., Wednesday. Fee \$12

A study of contemporary Russian novelists and fiction writers. The works of Gogol, Tolstoy Dostoievsky, Turgenev, Chekhov, and others will be discussed.

Contemporary literature e5-6—Modern poetry. 2 points each Session. Miss Hull

3:10-4:25 p. m., Thursday. Fee \$12 each Session

This course deals with modern poetry of Europe and America. It includes a study of the development of present tendencies in poetic conceptions with some analysis of the social background of which the poetry is an expression, and a study of modern poetic forms. The course is conducted by means of assigned readings, lectures, and class discussions.

### DRAWING

Drawing eW1—Freehand drawing. 2 points Winter Session. Mr. Lemcke 1:30-5:30 p. m., Saturday. Fee \$12

Will consist of practice in the elements of freehand perspective, and in drawing from casts or machine parts in outline, and in light and shade.

The completion of this course will be accepted as satisfying the entrance requirement in drawing.

Drawing eW2—Freehand drawing. 2 points Spring Session. Mr. Lemcke 1:30-5:30 p. m., Saturday. Fee \$12

Drawing eWI repeated in the Spring Session.

### **ENGINEERING**

Automobile Engineering

Automobile engineering e1-2—Elementary course. 2 points each Session. Mr. Woodbury

7:40-9:30 p. m., Monday. Fee \$12 each Session

This course in automobile engineering will teach the mechanical and engineering principles of automobile design. Particular pains will be taken to make clear technical terminology, to explain the relative merits of different types of construction and to enable the student to form his own opinions on the relative merits of different cars according to engineering principles. The primary aim will be to give to those who already have some practical knowledge of cars the theoretical framework of which they feel the need.

## Chemical Engineering

Chemical engineering e76—Elementary microscopy. Credit IV, if taken with related courses. Seven 3 hours' laboratory periods. I point Spring Session. Mr. Buswell and assistant

Hours to be arranged. Fee \$6

Instruction in the use of the microscope. Microscopy of starches, spices, textiles, etc. Deposit for breakage, \$15.

Chemical engineering e78—Sanitary bacteriological analysis. 2 hours' classroom and 6 hours' laboratory work a week. Credit IV, if taken with related courses. 5 points Spring Session. Mr. Buswell and Mr. Line

7-8:50 p. m., Tuesday; and 7-9:50 p. m., Wednesday and Friday. Fee \$30 Lecture, 7-8:50 p. m., Tuesday

Laboratory, 7-9:50 p. m., Wednesday and Friday

Practical instruction in bacteriology. Bacteriology of water, sewage, milk, etc. A short course for sanitary engineering students.

Deposit for breakage, \$15.
Prerequisite: Chemistry e14-15.

Will not be given for less than six students.

Chemical engineering e79—Sanitary chemical analysis. 2 hours' classroom and 3 hours' laboratory work a week. Credit IV, if taken with related courses. 3 points Winter Session. Mr. Buswell and Mr. Line

7-9:50 p. m., Tuesday; and 7-8:50 p. m., Wednesday. Fee \$18

Lecture, 7-8:50 p. m., Wednesday

Laboratory, 7-9:50 p. m., Tuesday

Sewage analysis. Sanitary chemical water analysis.

Deposit for breakage, \$15.

Prerequisite: Chemistry e72 or 65.

Will not be given for less than six students.

Chemical engineering e179—Sanitary chemical analysis. Graduate section of e79. Credit II. 3 points Winter Session. Mr. Buswell and Mr. Line 7-9:50 p. m., Tuesday, and 7-8:50 p. m., Wednesday. Fee \$18

Lecture, 7-8:50 p. m., Wednesday

Laboratory, 7-9:50 p. m., Tuesday

Deposit for breakage, \$15.

Prerequisite: Chemistry e72 or 65.

Will not be given for less than six students.

Chemical engineering e180—Sanitary analysis. Advanced methods and special problems. Credit II. 3 points Spring Session. Mr. Buswell and Mr. Line

7-8:50 p. m., Tuesday; and 7-9:50 p. m., Wednesday and Friday. Fee \$18 Lecture, 7-8:50 p. m., Tuesday

Laboratory, 7-9:50 p. m., Wednesday and Friday

Deposit for breakage, \$15.

Prerequisite: Chemistry e72.

Will not be given for less than six students.

### For courses in sanitary engineering see p. 44

### Civil Engineering

Note. With the exception of Civil engineering e1-2 these courses are intended solely for men already engaged in practical work. They do not correspond to day courses and no university credit is allowed for them. Students should note the prerequisites and are urged to confer with the instructor when in doubt as to the requirements. In connection with the courses in surveying attention is called to the complete practical courses given during the summer at Camp Columbia, Morris, Conn. These courses are open to properly qualified students who have fulfilled the necessary prerequisites. For further information address the Secretary, Columbia University, New York.

Civil engineering e1-2—Theory of plane surveying. Equivalent to Course CE2 advised for all students in the college preparatory course preliminary to

the graduate courses in civil, mining, metallurgical and sanitary engineering. Credit I, V. 2 points each Session. Professor Finch

7:30-9:10 p. m., Wednesday. Fee \$12 each Session

Winter Session—General principle of surveying and surveying instruments. Units and measurements. Errors and limits of precision. Tapes and measurement of distances. The vernier and level bubble. The wye and dumpy levels, theory of leveling, and rods. The compass, magnetic declination and variation, and local attraction. The engineer's transit, measurement of angles, azimuth and traversing. Latitude and departure, error of closure.

Spring Session—Surveys and computations: Land surveying, including farm, city and public land surveys, computation of coordinates and areas, parting off land, description, and relocation. Topographic surveying, transit and stadia method, theory and reduction of stadia measurements, the plane table and government work. Hydrographic, mine and construction surveys.

Prerequisite: Plane trigonometry (see Structural mechanics eXI-X2) or equivalent; also Winter Session prerequisite for Spring Session.

Text-book: Raymond's Plane Surveying.

Civil engineering e2a—Field problems in plane surveying. 1½ points Spring Session. A short course in field work arranged as a supplement to Course e1-2. Mr. Kraus

1:30-5, ten Saturday afternoons, and one evening, beginning March 10. Fee \$9

Civil engineering eY1-Y2—Plain and reinforced concrete construction. 2½ points each Session. Professor Finch and Mr. Kraus

7.30-9.10 p.m., Thursday. Fee \$15 each Session

Winter Session—Advantages, general definitions. Cement, manufacture, specifications, testing. The aggregate, proportions and strength of concrete. Mixing, depositing, forms. Flexure and design of plain beams. Reinforced beams. Rectangular and 'T' beams in bending. Shear and diagonal tension. Slabs. Columns.

Spring Session—Theory, design and construction. Bearing power of soils, earth and water pressure and loads. Gravity and cantilever retaining walls. Counterfoot reservoir wall. Slab and buttress dam. Design of forms for same. Design of pipes and standpipe. Highway slab and girder bridges. Loft building, including foundations and typical beams and columns.

No text-book will be used for this course, but students will be furnished with pamphlets, notes and tables. The Spring Session will be largely given over to actual design. The instructor will be present on evenings set for this work, from 7-10, in the drafting room, Room 404 Engineering. As a reference book on the work of the Winter Session, Hool's Reinforced Concrete Construction, Vol. I, and as a general reference, Taylor and Thompson, Concrete, Plain and Reinforced, are recommended.

Prerequisites: Structural mechanics eZ<sub>1</sub>-Z<sub>2</sub> and Mechanical drafting e<sub>1</sub>-2 or equivalent; also Winter Session prerequisite to Spring Session.

Civil engineering e3-4—Foundations and masonry construction. 2 points each Session. Professor FINCH

7.30-9.10 p.m., Monday. Fee \$12 each Session

Materials and foundations—Materials, construction and specifications, lime, cement, mortar, building stones, brick, and concrete. General principles of foundations. Base pressure. Safe pressures, borings and tests. Pile foundations. Spread foundations. Excavations for foundations, sheet piles, coffer dams and caissons.

Design and construction—Water and earth pressure. Gravity dams and retaining walls. Abutments and piers. Culverts and Voussoir arches. Chimneys.

The course will consist of lectures and problems. Students will be required to work out and submit a number of practical examples.

Prerequisites: Structural mechanics eZ1-Z2 and Mechanical drafting e1-2 or equivalent. Reference books—Jacoby and Davis: Foundations of Bridges and Buildings, and Baker's Masonry Construction.

### Electrical Engineering

## Electrical engineering e1—Elements of electrical engineering. Lectures. 3 points Winter Session. Mr. Keller

7:30-9:10 p. m., Tuesday and Friday. Fee \$18

Designed to give the student a general knowledge of the principles of electricity and magnetism and their applications in engineering practice.

Covers magnetism, electromagnetism, the application of Ohm's law to series and parallel circuits, power measurements, practical applications of Kirchhoff's laws, inductance, etc.

Prerequisites: Algebra, elementary chemistry and physics. Students should consult the instructor as to these prerequisites.

# Electrical engineering e2—Principles of direct-current machinery. Lectures and laboratory. 3 points Spring Session. Mr. Keller

7:30-9:10 p. m., Tuesday and Friday. Fee \$18

Designed to give the student a knowledge of the construction and characteristics of directcurrent generators and motors.

Covers the theory of generators and motors. Laboratory work consists of experimental work with shunt and compound generators and shunt, series and compound motors.

Prerequisite: Electrical engineering e1.

Note. A deposit of \$10 to cover possible breakage is required of students taking Electrical engineering e2.

# Electrical engineering e3—Elements of alternating currents. Lectures. 3 points Winter Session. Professor Hehre

7:30-9:10 p. m., Monday and Thursday. Fee \$18

Designed to give the student a general knowledge of the principles of alternating currents. Covers voltage and current relations in series and parallel circuits, power and power factor, inductance and capacity reactance, single and polyphase alternating current generators and armature windings.

Prerequisites: Electrical engineering e1 and e2 or equivalent. Students not having credit for e1 and e2 should consult with the instructor as to these prerequisites.

# Electrical engineering e4—Principles of alternating current machinery. Lectures and laboratory. 3 points Spring Session. Professor Hehre

7:30-9:10 p. m., Monday and Thursday. Fee \$18

Designed to give the student a general knowledge of the construction and characteristics of alternating current machinery.

Considers the theory and operation of the principal types of alternating current machinery. Laboratory work consists of some experimental work with the alternator, transformer, induction and synchronous motors, rotary converter and the parallel operation of alternators.

Prerequisite: Electrical engineering e3.

Note. A deposit of \$10 to cover possible breakage is required of students taking Electrical engineering e4.

# Electrical engineering e5-6—Wireless telegraphy and telephony. 2 points each Session. Professor Morecroft

7:30-9:20 p. m., Wednesday. Fee \$12 each Session

This course will embrace the theory and practice of radio communication. The lecture periods will be supplemented by laboratory demonstrations. No instruction or practice in operating will be given.

The course will cover the theory of oscillations in single and coupled circuits, decrement determinations, characteristics of long wave conductors, characteristics of the audio and radio frequency circuits of modern sending apparatus; continuous wave generation, characteristics of receiving circuits and detectors, with especial emphasis on the vacuum tube detector and oscillator.

Prerequisites: Stúdents wishing to enroll for this course must have had a good training in mathematics, continuous current and alternating current circuits and machines. Enrolment only after personal interview with instructor in charge of course.

For course in cable telephony see special circular

### Mechanical Drafting

Drafting e1-2—Mechanical drafting.\* 6 hours' lecture and drafting-room work per week. Credit Ic, V. 2 points each Session. Professor Harrington and assistant

7:20-10 p. m., Tuesday and Friday. Fee \$12 each Session

This course presupposes a fair ability in freehand drawing, and is the equivalent of Drafting r-2 given to college students looking forward to the new advanced course in engineering.

It should, if possible, be taken in conjunction with Drafting e3-4.

The topics covered will be: the use of instruments; geometrical drafting; lettering; orthographic projection; topographical drafting; elementary working drawings.

Drafting ela—Mechanical drafting.\* 6 hours' lecture and drafting-room work per week. Credit Ic, V. 2 points Winter Session. Professor Harrington and assistant

7:20-10 p. m., Tuesday and Friday. Fee \$12

Identical with Drafting e2, but given in the Winter Session.

For description see Drafting e1-2 above.

Drafting e2a—Mechanical drafting.\* 6 hours' lecture and drafting-room work per week. Credit Ic, V. 2 points Spring Session. Professor Harrington and assistant

7:20-10 p. m., Tuesday and Friday. Fee \$12

Drafting er repeated in the Spring Session for students entering in February. For description see Drafting er-2 above.

Drafting e3-4—Descriptive geometry. 2 hours' lectures per week. Credit Ic, V. 2 points each Session. Professor HARRINGTON

6:30-7:20 p. m., Tuesday and Friday. Fee \$12 each Session

This course will cover elementary problems relating to the point, right line, and plane; generation and classification of lines and surfaces; tangent planes to surfaces of single and double curvature; intersection of surfaces by planes; development of single curved surfaces; intersection of single curved surfaces. If possible, this course should be taken in conjunction with Drafting et-2.

**Drafting e6—Graphics.\*** 3 hours' drafting-room work per week. I point Spring Session. Professor HARRINGTON

7:20-10 p. m., Tuesday or Friday. Fee \$6

This course treats of the elements of shades and shadows, perspective, and stone cutting. The solution of problems in the shades and shadows of lines, planes, and groups of solids, including the niche and torus, gives a fair working knowledge of this subject, while a sufficient number of plates are given in perspective and stone cutting to illustrate in detail the principles involved.

Prerequisites: Elements of mechanical drafting and descriptive geometry.

Drafting e7—Engineering drafting.\* 3 hours' drafting-room work per week. I point Winter Session. Professor Harrington

7:20-10 p. m., Tuesday or Friday. Fee \$6

This course covers the detail drawings for pipe fittings, timber joints, mine cars, and ore skips.

Prerequisite: Elements of mechanical drafting.

<sup>\*</sup> Students will be required to furnish their own drafting instruments and materials.

Drafting e8—Structural drafting.\* 3 hours' drafting-room work per week.

I point Spring Session. Professor Harrington

7:20-10 p. m., Tuesday or Friday. Fee \$6

This course includes methods used in framing and detailing in structural work, standard connections, beams, columns, plate girders and roof trusses.

Prerequisite: Elements of mechanical drafting.

Drafting e8a—Structural drafting.\* 6 hours' drafting-room work per week. 2 points Spring Session. Professor Harrington

7:20-10 p. m., Tuesday and Friday. Fee \$12

This course is similar in character to Drafting e8, but covers the ground more thoroughly. Prerequisite: Elements of mechanical drafting,

Drafting e103-104—Machine elements.\* 2 hours' lectures and 3 hours' drafting-room work a week. Credit II. 2 points each Session. Mr. Tucker 7-9 p. m., Monday. Drafting, 7-9:30 p. m., Thursday. Fee \$12 each Session

A study of the details entering into the construction of the machines used in the manufacturing, mining, metallurgical, chemical and transportation industries, as well as in the industries contributing to such service as the news, the telephone, the telegraph and power generation. Elements, such as frames, bearings, shafts, pulleys, flywheels, cams, gears, brakes, fastenings, belts, springs, pipes, valves, fittings, tanks and boilers.

Prerequisite: Elements of mechanical drafting.

### Sanitary Engineering

Sanitary engineering eX2—Sewage treatment. Lectures. 2 points Spring Session. Mr. Brown

7:30-9:10 p. m., Monday. Fee \$12

Screening. Sedimentation by gravity and by chemical precipitation. Continuous flow tanks. Contact beds. Percolating or trickling filters. Sterilization. Intermittent application to soil with underdrainage. Disposal of sludge. Plants for sewage treatment. Pollution of streams.

Reference books: Metcalf and Eddy, American Sewerage Practice, Vol. III; Fuller, Sewage Disposal.

Will not be given for less than six students.

Sanitary engineering eY2—Sanitary design. Lectures. 2 points Spring Session. Mr. WALKER

7:30-9:10 p. m., Thursday. Fee \$12

Detailed design of typical sewage treatment works, including grit chambers, pumping stations, Imhoff tanks, sludge drying beds, sprinkling filters, sand filters, contact beds, disinfection. Design of water filtration plants. Slow sand filters. Rapid sand filters.

Will not be given for less than six students.

### For course in sanitation see p. 86

#### Structural Mechanics

NOTE. The following courses in structural mechanics are intended only for men engaged in practical work. They do not correspond to day courses and no university credit is allowed for them. For specific courses in architecture, especially in building materials, see page 53 and following.

<sup>\*</sup> Students will be required to furnish their own drafting instruments and materials.

# Structural mechanics eX1-X2—Elements and applications of algebra and trigonometry. 2 points each Session. Mr. CLARK

6:10-7 p. m., Monday and Thursday. Fee \$12 each Session

The aim of this course is twofold: first, to give to the student beginning the study of structural mechanics a clear understanding of the mathematics necessary for further study of the subject; second, to fit him to handle his present practical problems with greater facility.

The work of the Winter Session will consist of a drill in the principles and applications of elementary algebra, through quadratics, and including graphic methods. In the Spring Session there will be given a course in plane trigonometry and its applications to problems of a practical nature. A thorough drill in the use of logarithms and the slide rule will be included. Students are urged to present for class discussion problems arising in their work.

# Structural mechanics eX3-X4—Elements and applications of geometry, plane and solid. Mensuration. 2 points each Session. Mr. CLARK

7:20-8:10 p. m., Monday and Thursday. Fee \$12 each Session

The aim of this course is to develop ability in the student to think clearly, concisely and logically; to give him a clear understanding of the important theorems of geometry and their numerous applications in different lines of work; to develop in him independence in attacking and solving a problem; to derive the formulas of mensuration and to give drill in their use; to find lengths of lines, areas of surfaces, volumes of solids, etc. Special attention will be given to accurate representation of the figures.

Although no credit is allowed for this course, it is a good review of geometry for men preparing for examinations.

# Structural mechanics eZ1—Elements of coplanar statics. 3 points Winter Session. Professor SCHROEDER

6:10-7 p. m., Monday and Thursday. Fee \$18

Algebraic and graphic methods are used in parallel; composition and resolution of forces; principles of equilibrium; determination of stresses in simple jointed frames, such as trusses and cranes; centers of gravity and centroids.

Prerequisite: Course eXI-X2, or its equivalent.

Text-book: Maurer's Technical Mechanics, third edition.

# Structural mechanics eZ2—Elements of mechanics of materials. 3 points Spring Session. Professor Burnside

6:10-7 p. m., Tuesday and Thursday. Fee \$18

Continuation of Course eZ1. Moments of inertia and radii of gyration of plane areas, builtup beam and column sections; direct tension, compression and shear; strengths of beams, columns and riveted joints; deflection of beams.

Prerequisite: Course eZ1.

Text-book: Merriman's Mechanics of Materials.

# Structural mechanics eZ3-Z4—Designs and details of framed structures. 3 points each Session. Professor Schroeder

7:15-9:45 p. m., Monday and Thursday. Fee \$18 each Session

Continuation of Course eZ2. Complete designs, including the designing of the details, with general drawings of the same and estimates of costs, will be made for a wooden roof truss, a steel truss, and a plate girder railway bridge. Fixed and moving loads will be considered in connection with bridge stresses. Parts of other structures will be designed and analyzed to illustrate the applications of the fundamentals in the theory, such as column details, riveted connections eccentrically loaded, pin-plates, and pins.

A special feature of the course is that all of the study, calculations and execution necessary for each complete design will be done in the drafting-room under the direction of the instructor.

Essentially all of the information required by the student relative to the solution of each design will be given in notes prepared by the instructor. The notes will be used as a text; they illustrate the calculations for, and lay-outs of, structures similar to those assigned as

problems and will be supplemented by occasional lectures, and assigned readings in Johnson, Bryan and Turneaure: Modern Framed Structures, Part III.

Prerequisites: Mechanical drafting e1-2, Structural mechanics eZ1 and eZ2, or their equivalents.

Structural mechanics eY1-Y2—Estimating for building construction. 3 points each Session. Mr. EISELE

7:30-9 p. m., Monday and Thursday. Fee \$18 each Session

Plan reading and methods of estimating the quantities of materials required for buildings will be studied. Detailed estimates of costs of materials and labor for all trades will be prepared from the plans of a city building. Instruction will be given as to the restrictions of and methods of procedure under the building laws of New York City.

Prerequisites: Students should consult the instructor before registering for this course.

### **ENGLISH**

### Undergraduate Courses

English eA1-A2—English composition. Lectures, themes and conferences. Credit I, IV. 3 points each Session. Fee \$18 each Session

Section 1-3:10-4:25 p. m., Monday and Thursday. Dr. Brewster

Section 2-3:10-4:25 p. m., Tuesday and Friday. Dr. TAYLOR

Section 3-3:10-4:25 p. m., Monday and Thursday. Dr. Scarborough

Section 4-4:30-5:45 p. m., Monday and Thursday. Dr. Brewster

Section 5-4:30-5:45 p. m., Tuesday and Friday. Dr. TAYLOR

Section 6—7–8:15 p. m., Monday and Thursday. Dr. Wolff

Section 7-7-8:15 p. m., Tuesday and Friday. Dr. TAYLOR

This course corresponds to English A in Columbia College. It is planned for students who have had four years of high school English or the equivalent. Students are expected to confer

have had four years of high school English or the equivalent. Students are expected to confer regularly with the instructor at times to be appointed within the conference period immediately following each class.

English eA3-A4—English composition. Lectures, themes and conferences. Credit I, IV, if taken both Sessions. 1 ½ points each Session. Dr. Wolff 9-10:15 a. m., Saturday. Fee \$9 each Session

This course is equivalent to one-half of English A. It is offered for teachers and students who desire to gain a knowledge of the principles of rhetoric and English composition as they are now taught in the colleges.

Two one-page themes or one three-page theme a week will be called for. Students are expected to confer regularly with the instructor at times to be appointed within the conference period, 10:15-10:45 a. m. No other engagement should be made for this half-hour.

English eA8—English composition. Lectures, themes and conferences. Credit I, IV. 3 points Spring Session. Fee \$18. Mr. CLARK

Section 1-8:20-9:35 p. m., Monday and Thursday

Section 2-3:10-4:25 p.m., Monday and Thursday

Course eAr given in the Spring Session for new students.

English eA9—English composition. Lectures, themes and conferences. Credit I, IV. 3 points Winter Session. Mr. CLARK 8:20-9:35 p. m., Monday and Thursday. Fee \$18

Course eA2 given in the Winter Session for students who have already had English eA1 or eA8 or the equivalent.

English eB1-B2—English literature and composition. Lectures, themes and conferences. Credit I, IV. 2 points each Session. Dr. Wolff

8:45-9:35 p. m., Monday and Thursday. Fee \$12 each Session

This course corresponds to English B in Columbia College. It consists in part of the careful and appreciative study of portions of the works of Chaucer, Spenser, Milton, Pope and Wordsworth.

English eB3-B4—Introduction to poetry. Credit I, IV. 3 points each Session. Dr. HALLER

3:10-4:25 p. m., Tuesday and Friday. Fee \$18 each Session

Intensive study of poetic conceptions and forms in a wide range of types: Golden Treasury, Homer's Iliad (in translation), Spenser's Faerie Queene, Milton's Paradise Lost, selections from Wordsworth, Shelley, Byron, Tennyson and later poets. Introductory study of literary forms, such as epic, drama, ode, sonnet; brief consideration of the laws of versification.

English eB5-B6—Survey of English literature. Credit I, IV. 2 points each Session. Dr. TAYLOR

2:50-4:30 p. m., Monday. Fee \$12 each Session

This course is designed primarily as a survey course in English literature. It aims to acquaint the student with the most important writings of the major authors in each period of the history of English literature.

English e1a-2a—English composition. Advanced course. Lectures, themes and theme criticism. Credit I, IV. 1½ points each Session. Dr. Wolff

II a. m.-12:15 p. m., Saturday. Fee \$9 each Session

Open to students who have passed English A with high standing or to special students of maturity. This course presumes a knowledge of formal rhetoric and training in the essentials of composition, correctness and precision. From two to four pages of manuscript (250–500 words) are required each week.

English e1b-2b—The short story. English composition. Theory of fiction writing. Lectures, themes and criticism. 3 points each Session. Fee \$18 each Session. Miss Hull

Section 1-3:10-4:25 p. m., Wednesday

Section 2-7-8:15 p. m., Wednesday

Narration without plot; plot narrative. The course includes a study of the narrative qualities of biography and autobiography, a study of the general necessities of the short story, and work upon characterization in narrative writing. Students wishing to enter this course must submit during the first week a sketch of 500-1500 words. Five papers of 2000-5000 words are required each Session.

English e1c-2c—The short story. Advanced course. English composition. Theory of fiction writing. 4 points each Session. Fee \$24 each Session

Section 1-9:30-10:45 a. m., Saturday. Professor BI ANCHE C. WILLIAMS

Section 2-8:20-9:35 p. m., Wednesday. Dr. Scarborough

A continuation of English e1b-2b. Story writing studied from the point of the literary critic and of the writer. Details of construction will be investigated and the student called upon to contrive plots. This course, which emphasizes the study of plot, is open to those who have completed Course 1b-2b, or to those who submit during the first week a sketch or story of not more than 5000 words as evidence of competency; individual conferences.

English e1d-2d—The short story. Second advanced course. 4 points each Session. Fee \$24 each Session

Section I-II a. m.-12:15 p. m., Saturday. Professor BLANCHE C. WILLIAMS

Section 2-8:20-9:35 p. m., Thursday. Dr. Scarborough

Each section is limited to thirty. Students should consult the instructor at the regular class hour before registration. This course is open only to the following students: those who have done promising work in English erc-2c; those who have not completed Course erc-2c but submit at the outset a story of merit; and those graduate students specializing in English composition who wish advanced training in theory and criticism.

English e3a-4a—Dramatic composition. 3 points each Session. Fee \$18 each Session. Mr. Hughes

Section 1—11:10 a. m.-12:25 p. m., Saturday Section 2—8:20-9:35 p. m., Friday

This course is designed for students desiring to write plays. In the beginning of the course each student will be required to submit the scenario of a play to be written during the year. These scenarios will be criticized with reference to their suitability for the stage and the manuscripts prepared from them will be analyzed from the point of view of the dramatist. Specific technical problems will be discussed in class as they come up in the course of the work. Representative recent and current plays will be taken up and analyzed with a view to ascertaining the principles underlying their construction and the causes of their success or failure. Constant practice in plot construction and the preparation of scenarios will be given. In so far as possible the work of the course will be adapted to meet the specific requirements of the individual students.

English e3b-4b—Dramatic composition. Advanced course. 4 points each Session. Mr. Hughes

8-10 p.m., Thursday. Fee \$24 each Session

Prerequisite: English e3a-4a, or the equivalent, and the consent of the instructor.

English e5a-6a—History and theory of literary criticism. 3 points each Session. Dr. Wolff

4-5:40 p. m., Thursday. Fee \$18 each Session

This course will be primarily historical, treating criticism as a series of attempts to solve problems that seemed important to authors and critics of the time. The general stock of critical theory will be found to consist of whatever in these attempts proved to be of recurrent or permanent interest. Before undertaking each critical problem, the student will, therefore, be required to read, or to have read, representative pieces of the primary literature out of which the problem arose—the *Iliad* before the *Republic*, the *Oedipus Rex* before the *Poetics*.

English e9-10—Advanced course in oral reading. Credit I, IV. 2 points each Session. Professor Tassin

4:10-5:40 p. m., Friday. Fee \$12 each Session

Modern dramas, short stories, narrative poems. The program will be varied according to the desire of the class.

English e11a-12a—Public speaking. Credit I, IV. 2 points each Session-Fee \$12 each Session. Mr. HALLIDAY

Section 1—7:30–9:10 p. m., Wednesday

Section 2-7:30-9:10 p. m., Friday

This course will deal with public address. Its aim is to give practical training to men and women of whom speaking is demanded in their profession. The first hour will be given to the delivering of prepared speeches, the second to special training before the class.

English e12b—Public speaking. Credit I, IV. 2 points Spring Session. Mr. Losey

7:30-9:10 p. m., Monday. Fee \$12

English erra repeated in the Spring Session.

English e13-14—Elocution. Credit I, IV. 2 points each Session. Fee \$12 each Session. Mrs. Davis

Section 1-9:20-11 a. m., Saturday

Section 2-4-5:40 p. m., Wednesday

Winter Session—Breathing, carrying tone, distinct utterance, correction of faults (nasality and breathiness in tone and localisms and sluggishness in speech) and a practical study of English phonetics.

Spring Session—A study of the elements of vocal expression (emphasis, phrasing, inflection, pitch, force, time, etc.)

Drill and individual practice by means of short passages of literature will be given at each lesson.

English e15-16—English prosody. Elementary course. 2 points each Session. Mr. Hooker

8:20-10 p. m., Thursday. Fee \$12 each Session

A technical study of rhythm and metre in English verse, and of the means by which its various effects are produced; intended not only for those engaged in the composition of original verse, but also for those who desire to achieve a richer appreciation of poetry through the understanding of its technical methods. Illustrations will be drawn from contemporary work as well as from that of accepted masters; attention will be given to the character of different verse-forms, as especially suited to the expression of certain types of thought. This course will run throughout the year; no one will be admitted after the beginning of the course without passing an examination in the work already covered.

English e15a-16a—English prosody. Advanced course. 4 points each Session. Mr. Hooker

2-3:40 p. m., Wednesday. Fee \$24 each Session

Original work in metrical composition and research into the technical problems of prosody. Individual supervision and criticism of the work of each student. Candidates must have had the elementary course, English e15–16, or its equivalent, and must evince either a natural talent for verse writing or the ability to do research work in the subject.

English e17-18—Modern literature, English and foreign. Credit I, IV. 2 points each Session. Professor Steeves

7:25-8:15 p. m., Monday and Thursday. Fee \$12 each Session

This course is a general survey of the principal current literary types, tracing their characteristics from the influences prevalent in the Victorian period and giving attention to foreign artistic sources and parallels. The course requires extended and rapid outside reading of a weekly average of possibly three hundred or four hundred pages. The required reading can generally be found in the branch libraries of the New York Public Library.

English e19-20—The history of American literature. Credit I, IV. 2 points each Session. Professor Tucker

4:10-5:50 p. m., Monday. Fee \$12 each Session

The course furnishes an account of literary production in America from the beginning to the present day. Special attention is given to literary movements in their relation to the political and social background. Assigned readings in important authors will supplement lectures and recitations.

English e21-22—English literature from 1780-1830. Credit I, IV. 2 points each Session. Professor Patterson

4:45-6:25 p. m., Wednesday. Fee \$12 each Session

This course will deal with English romanticism beginning with Cowper. After tracing the first signs of revolt against eighteenth century thought and ideals, it will treat of the new spirit as it expressed itself in the works of the poets and prose writers of the early part of the

nineteenth century. While the course will include the work of men not especially well known, it will aim to embrace in considerable detail the poetry of Wordsworth, Shelley, Keats, and Byron. The work will be conducted by means of assigned readings and discussions.

# English e23-24—English literature from 1830-1890. Credit I, IV. 2 points each Session. Dr. TAYLOR

7:30-9:10 p. m., Wednesday. Fee \$12 each Session

This course deals with the history of English literature during the Victorian era. Writers including Bulwer, Carlyle, Disraeli, Tennyson, Newman, Arnold, Clough, Macaulay, Dickens, Thackeray, Bronté, Browning, Mrs. Browning, Kingsley, George Eliot, Reade, Trollope, Ruskin, Rossetti, Christina Rossetti, Morris, Swinburne, Meredith, and Hardy, will be discussed. The course will be conducted by means of assigned readings, class-room discussions, lectures, quizzes, and reports.

## English e35a-36a—Shakspere. Credit I, IV. 2 points each Session. Professor Tassin

11 a. m.-12:40 p. m., Saturday. Fee \$12 each Session

An introduction to the study of Shakspere, the condition and character of his life and work and the technic of his plays studied from the dramatic rather than from the literary point of view.

## English e39-40—The English novel. Credit I, IV. 2 points each Session. Dr. Brewster

11 a. m.-12:40 p. m., Saturday. Fee \$12 each Session

Beginning with Samuel Richardson, the course will trace the development of the novel down to the present day, with due attention to the influence of social and economic changes. The work of the Winter Session will include the early Victorian novel. In the Spring Session, the work will center around Meredith and Hardy. The work of a few of the later novelists will also be considered.

The lectures will be supplemented by assigned readings, reports, and discussions.

# English e41-42—History of the English drama to 1642. Credit I, IV. 2 points each Session. Mr. Lyon

2:50-4:30 p. m., Thursday. Fee \$12 each Session

There will be a rapid survey of the English drama and its origins. The main stress in this course, however, will be placed on the development and importance of the theater from the accession of Elizabeth until its close in 1642. A study of Shakspere and his plays will not be attempted; but attention will be given to the influence of Shakspere's predecessors and contemporaries, both English and continental, on his work. The outside reading is planned to show both the development of the drama and the life of the people. Lectures and reports.

## English e41a-42a—Contemporary dramatic literature. 2 points each Session. Mr. CLAYTON HAMILTON

10-11:40 a. m., Saturday. Fee \$12 each Session

In this course study is made of representative works of the leading modern dramatists from Victor Hugo to Sir Arthur Pinero. Special attention is devoted to the evolution of contemporary stagecraft. The best new plays presented during the current theater season in New York are also analyzed from the point of view of the dramatic critic. The course is especially helpful to students who desire subsequently to write plays or to write dramatic criticism; it brings the actual theater of to-day within the reach of academic study.

### Comparative Literature

### Comparative literature e3-4—Masterpieces of European literature. Credit I, IV. 3 points each Session. Mr. Lyon

4:45-6:25 p. m., Tuesday. Fee \$18 each Session

This course is designed to give students an intimate acquaintance with those works of literature which are called World Masterpieces. The method followed will be primarily according to

types; but the historical importance of each work studied will be made evident. Rapid outside reading is required of books generally found in all public libraries. Lectures, discussions, and reports.

## For courses in contemporary literature see pp. 38 and 39

### Graduate Courses

For students who have already received the bachelor's degree, these courses may be credited towards the higher degrees.

English e207-208—History of the English language. Credit II. 3 points each Session. Professor Krapp

11 a. m.-12:40 p. m., Saturday. Fee \$18 each Session

This course will discuss the sounds of standard English descriptively and historically.

# English e233-234—English literature in the eighteenth century. Credit II. 3 points each Session. Professor TRENT

5:10-6 p. m., Tuesday and Friday. Fee \$18 each Session

This course covers the development of English literature during the eighteenth century, more especially of the poetry. Emphasis is laid on Defoe, Swift, Pope, Thomson, Gray, Collins, Johnson, Cowper, and Burns, but attention is also paid to many minor writers.

# English e237-238—English literature, 1832-1880. Credit II. 3 points each Session. Professor Thorndike

5:10-6 p. m., Monday and Wednesday. Fee \$18 each Session

Beginning with 1832, this course covers the literature of the next fifty years, including the work of Macaulay, Carlyle, Mill, Ruskin, Newman, Browning, Tennyson, Arnold, Mrs. Browning, and other writers, as time permits.

## Preparatory Courses

# English eV1-V2—Elementary English. 2 points each Session. Miss DILLER

5-5:50 p. m., Wednesday and Friday. Fee \$12 each Session

Students in this course will study elementary principles of English grammar, will write frequent short compositions on simple subjects, and make brief oral recitations on assigned topics. Emphasis will be placed on pronunciation and spelling; considerable correction will be done in class. Foreign students and those unfamiliar with English idiom are advised to select this course.

# English eW1-W2—English grammar and composition. 3 points each Session. Fee \$18 each Session. Mr. Duncan

Section 1-1:45-3 p. m., Monday and Thursday

Section 2-7-8:15 p. m., Monday and Thursday

This course is intended for mature students who desire to acquire a thorough knowledge of the elementary principles of English grammar. After a rapid review of the parts of speech and their modifications, a detailed treatment of word elements, phrase elements and clause elements and their relations in sentences will be given. Much time will be devoted to the analysis and synthesis of different types of sentences. Punctuation will be regarded as a system of points to denote grammatical relations, and thus considerable attention will be given to this subject. One-page compositions on subjects drawn from life and from the experience of the students will be required regularly. This course is recognized as a credit course for promotion licenses by the Board of Education. Students will be expected to confer regularly with the instructor at such times as he may designate.

Students who contemplate taking College entrance English, either English eX1-X2 or eY1-

Y2, should have completed this course or its equivalent.

Text-books: Blount and Northup's Elementary English Grammar; Brooks's English Composition, Book II; Woolley's Handbook of Composition.

English eW4—English grammar. 3 points Spring Session. Mr. Duncan 8:20-9:35 p. m., Monday and Thursday. Fee \$18

Course eWI repeated in the Spring Session.

English eW5—English composition. 3 points Winter Session. Mr. Duncan 8:20-9:35 p. m., Monday and Thursday. Fee \$18

Course eW2 given in the Winter Session.

English eX1-X2—College entrance English. Composition and reading. Themes, conferences, reading of texts, tests, lectures, special oral reports, discussions. 3 points each Session. Mr. Duncan

3:10-4:25 p. m., Monday and Thursday. Fee \$18 each Session

Designed to aid in preparing for English 1 and 2 as required for admission to college. During the Winter Session the literature read will be plays and novels; during the Spring Session, poems and essays. In connection with the reading of literary masterpieces, special attention will be paid to the problem of how to read and to the work of composition planning. The course is, therefore, also suited to the needs of mature persons who, while not desirous of obtaining credit for entrance to college, desire guidance in reading, writing and speaking. The successful completion of this course will count toward the removal of entrance conditions in English. Students will be expected to confer regularly with the instructor at such times as he may designate.

Students who register in this course should have completed English eW1-W2 or its equivalent.

Text-books: Woolley's *Handbook of Composition*. Ten classics chosen from the list prescribed by the Committee on Uniform Entrance Requirements.

English eX4—College entrance English. 3 points Spring Session. Dr Gaston

7-8:15 p. m., Monday and Thursday. Fee \$18

Course eXI repeated in the Spring Session.

English eX5—College entrance English. 3 points Winter Session. Dr. Gaston

7-8:15 p. m., Monday and Thursday. Fee \$18

Course eX2 given in the Winter Session.

English eY1-Y2—College entrance English. Composition and study of texts. Themes, tests, lectures and discussions. 3 points each Session. Fee \$18 each Session

Section 1—3:10–4:25 p. m., Tuesday and Friday. Mr. Duncan Section 2—7–9:30 p. m., Tuesday. Mr. Pang

This course is designed to aid in preparing for English 2, as required for admission to college. The work will consist of a detailed study of the books in the study list, a thorough review of English literature, and the writing of many themes. Students will be called upon to do much written work in exposition in preparation for each lesson. The successful completion of this course will count toward the removal of entrance conditions in English. Students will be expected to confer regularly with the instructor at such times as he may designate.

Students already registered in this course who show obvious inability to carry the work will be transferred to Course eX1-X2.

Prerequisite: English eXx-X2 or its equivalent (the third year of high school course).

Text-books: Woolley's Handbook of Composition; Moody and Lovett's A First View of English
Literature; Mitchill and Carpenter's Exposition in School-Room Practice. Four classics chosen
from the list prescribed by the Committee on Uniform Entrance Requirements.

English eY4—College entrance English. 3 points Spring Session. Mr. Pang

7:30-10 p. m., Wednesday. Fee \$18

Course eY1 repeated in the Spring Session.

English eY5—College entrance English. 3 points Winter Session. Mr. Pang

7:30-10 p. m., Wednesday. Fee \$18

Course eY2 given in the Winter Session.

English eZ1-Z2—English spelling. I point each Session. Fee \$6 each Session. Mr. Duncan

Section 1-4:30-5:20 p. m., Wednesday and Friday

Section 2-6:10-7 p. m., Monday and Thursday

This course is designed for mature students who spell badly. An effort will be made to teach spelling through the threefold appeal to the eye, the ear and the touch. While considerable time will be devoted to phonics, syllabication and rules of orthography, much more time will be given to actual spelling. The aim will be to discover and correct the deficiencies of the individual student. Attention will be given to words in common use and words commonly misspelled rather than to unfamiliar and technical words. Each student will be required to keep an alphabetical list of all words he misspells.

Text-book: Eldridge's Business Speller and Vocabulary.

Business English e1-2—Business English and commercial correspondence. 3 points each Session. Fee \$18 each Session. Mr. Duncan

Section 1-2-3 p. m., Tuesday and Friday

Section 2-7:30-9:20 p. m., Wednesday

This course is intended for office assistants, private secretaries, and those who wish to become proficient in effective business communication. The aim is to teach how to use words in such a way as to make people act. The principles of literary composition will be applied to commercial correspondence. Business situations will be analyzed, letters classified into type forms, and the requisites of each class will be exemplified by many models. The psychology of advertising and the sales letter will be analyzed, and principles derived from this analysis will be applied in actual practice. The course will be not merely theoretical, but practical. Every student will be required to write several letters each week, and no one who has not sufficient time for such written work should take this course.

Special consideration will be given to letters of application, letters of complaints, sales letters, follow-up letters and collection letters.

A prerequisite to this course is a knowledge of the principles of elementary English grammar.

#### FINE ARTS

Architecture e27—Ancient architecture. Credit I. 2 points Winter Session. Mr. Hopkins

4-4:50 p. m., Tuesday and Thursday. Fee \$12

The ancient architecture of Egypt, Assyria, Persia, Greece, and Rome.

Will not be given for less than ten students.

Architecture e28—Medieval architecture. Credit I. 2 points Spring Session. Mr. Hopkins

4:10-5 p. m., Tuesday and Thursday. Fee \$12

Early Christian and Byzantine architecture; the Romanesque and Gothic styles in Italy, France, England, Germany, Spain and the Netherlands; analytical and critical discussion of the historic development, characteristics and chief examples of the medieval styles,

Will not be given for less than ten students.

Architecture e31-32—Ancient ornament. Credit I, V. 1 point each Session. Mr. Hamlin

6-6:50 p. m., Friday. Fee \$6 each Session

General classifications; origins, primitive and savage ornament; the historic ornament of Egypt, Assyria, Persia, Greece and Rome, including Ægean, Cypriote, Phoenician and Etruscan ornament; the development of the styles, the common motives and patterns of both architectural ornament and the minor arts.

No credit will be given for Architecture e31-32 unless taken with one other course.

Architecture e33-34—Medieval ornament. Credit I, V. 1 point each Session. Mr. Hamlin

6-6:50 p. m., Tuesday. Fee \$6 each Session

The ornament of the Early Christian, Byzantine, Romanesque and Gothic styles both in architecture and the minor arts; the development of styles, motives and patterns.

No credit will be given for Architecture e33-34 unless taken with one other course.

Fine arts e51a—Sculpture and the decorative arts. A study of the originals in the Metropolitan Museum of Art, including the Altman and Morgan collections. 2 points Winter Session. Fee \$12. Dr. Kriehn

Section 1—2:30-4:10 p. m., Friday, Metropolitan Museum

Section 2-10:30-12:10 p. m., Saturday, Metropolitan Museum

Section 3—8:15-9:55 p. m., Saturday, Metropolitan Museum. Begins October 13

Section 4—10:30 a. m.-12:10 p. m., Monday, Metropolitan Museum. Begins October 22

Section 4 will be given only if the other sections are filled.

This course, combined with Fine arts e52a, offers a year's systematic study of the most important art objects in the Metropolitan Museum. It is designed especially to teach the appreciation of sculpture and the decorative arts, as practised in the great historic styles, and to outline briefly their history. Among the subjects treated, besides sculpture proper, will be ivories, enamels, ceramics, small bronzes, terracottas, furniture, and other decorative arts. Advantage will be taken of the J. P. Morgan collection, in studying the decorative arts. Special attention will be devoted to the needs of teachers and university students, for whom Section 2 is designed. The course is accepted as a thirty-hour collegiate course by the Board of Education of New York City. Use will be made of the important Museum library, with its collection of photographs and other reproductions.

Fine arts e52a—The paintings of the Metropolitan Museum of Art. A study of the originals in the Museum, including the Altman and Vanderbilt collections. 2 points Spring Session. Fee \$12. Dr. Kriehn

Section 1-2:30-4:10 p. m., Friday, Metropolitan Museum

Section 2-10:30 a. m.-12:10 p. m., Saturday, Metropolitan Museum

Section 3—8:15–9:55 p. m., Saturday, Metropolitan Museum

Section 4—10:30 a. m.-12:10 p. m., Monday, Metropolitan Museum. Begins February 19

Section 4 will be given only if the other sections are filled.

Planned for all who wish to learn how to judge and enjoy painting. A continuation of the preceding course, but may be taken independently. While special attention will be given to the technical qualities of painting, its meaning will not be neglected. Each Session will be devoted to a school or to individual masters of painting; but the treatment will be in historic sequence, thus outlining the history of painting. Among the topics treated are Italian painting, both primitive and developed; the early Netherlandish and German schools; Flemish and Spanish masters; Dutch painting, with special emphasis on Rembrandt (Altman collection); the old

English masters; French painting with emphasis on the Barbizon school (Vanderbilt collection); modern European painting; American painting, both early and contemporary. Students, teachers, and others wishing to take the examination should enroll, if possible, in Section 2, which is especially designed for them.

Fine arts e53-54—Outlines of art history. 2 points each Session. Dr. Kriehn

3:10-4:25 p. m., Monday. Fee \$12 each Session

A general course, it treats the great epochs of art in the western world from the appreciative as well as the historic point of view. The chief subjects are painting, sculpture and architecture, with emphasis on that phase in which the age or people found its highest expression; on sculpture, for example, in ancient Greece; architecture and decoration during the Roman and medieval epochs, on the painting and sculpture of the Renaissance, and on painting during the modern period. There will be special lectures on the great masters in whose works art culminated, such as: Michelangelo, Raphael and Titian in Italy, Rubens and Van Dyck in Flanders, Hals and Rembrandt in Holland, Velasquez in Spain, and Rodin in France. During the nineteenth century, the emphasis will be placed on the painting of France and the United States. A full syllabus will be distributed, and the lectures will be illustrated with the stereopticon.

#### **GEOGRAPHY**

Geography e25—Physical geography of the atmosphere and oceans. Lectures and laboratory work. Credit I, IV. 3 points Winter Session. Mr. LOBECK

8:20-9:50 p. m., Monday and Thursday. Fee \$18

The first part of this course consists of an introductory discussion of the earth as a globe; latitude, longitude and time; methods of map projection; the geographic effects of the earth's rotation and revolution and of terrestrial magnetism. The major part of the time is devoted to consideration of the constitution, temperature, and pressure of the atmosphere; weather predictions and the making of weather maps; climatic provinces. In connection with the ocean the following topics will be considered: The composition and temperatures of ocean water; ocean currents and their effects on navigation, climate, and the distribution of food fishes; tides and their influence on harbors, navigation, and sewage disposal; wave action and its effect on shores and harbors.

Special attention will be paid to the needs of those engaged in, or looking forward to, the teaching of elementary physical geography.

Geography e26—Physical geography of the lands. Lectures and laboratory work. Credit I, IV. 3 points Spring Session. Mr. LOBECK

8:20-9:50 p. m., Monday and Thursday. Fee \$18

This course deals primarily with the origin and evolution of the surface features of the earth. The chief topics considered are: The work of rivers, glaciers, waves, and winds, and the evolution of the forms which they produce; the different types of plains, plateaus, mountains and volcanoes, and their stages of development under stream erosion; the representation of land forms by topographic maps, block diagrams and other methods of illustration.

As in Physical geography e25, special attention will be given to the needs of those members of the class who are engaged in, or looking forward to, the teaching of elementary physical geography.

#### **GEOLOGY**

Geology e1—General geology. A general introduction to the subject of geology. Lectures and laboratory work. Credit I, IV. 3 points Winter Session. Mr. MORRIS

8:20-10 p. m., Tuesday and Friday. Fee \$18

This course covers an introduction to the common rocks, their structure, origin, and occurrence in nature; rock weathering and its products, geological activities of the air, the streams and the sea; characteristics and work of glaciers, volcanoes and earthquakes.

The laboratory work consists of a study and identification of common rocks, drawing of profiles and structure sections, interpretation of topographical maps, etc. There will be several field trips on Saturday afternoons.

No prerequisite. Equivalent to Geology 1 in Columbia College. A knowledge of elementary chemistry is desirable.

Text-book: Chamberlin and Salisbury, College Geology.

Geology e2—Historical geology. The origin of the earth and its development—succession of plant and animal life. Lectures and laboratory. Credit I, IV. 3 points Spring Session. Dr. Galloway

8:20-10 p.m., Tuesday and Friday. Fee \$18

This course deals with the origin of continents and ocean basins and their development during successive geologic periods, characteristic sections and their interpretations, study of important types of fossils as indication of geologic age; the glacial period and the antiquity of man; development of surface features or physiography.

The laboratory work consists of the study of maps, the making of sections and the identification of fossils, followed by work with physiographic models. There will be several excursions on Saturday afternoons in the spring.

Prerequisite: Geology I or Geology eI or SI.

Text-books: Chamberlin and Salisbury, College Geology; Grabau, Syllabus of Historical Geology; Pirsson and Schuchert, Geology.

Geology e3—Lithology. An introduction to the study of minerals and rocks. Recitations and laboratory work. Credit IV. 3 points Winter Session. Mr. COLONY

7-8:20 p. m., Tuesday and Friday. Fee \$18

The methods of determining minerals, especially rock-forming minerals; classification of rocks; laboratory practice with both minerals and rocks. The object is to attain facility in sight recognition and discrimination of these natural products.

Text-book: Kemp's Handbook of Rocks.

#### GERMAN

German eA1-A2—Elementary course. Credit I, IV. 4 points each Session. Fee \$24 each Session

Section 1—4:30-5:55 p. m., Tuesday, Wednesday and Friday. Dr. BÖHME Section 2—8:30-9:55 p. m., Monday, Wednesday and Thursday. Mr. Scholz Section 3 limited to men matriculated in Columbia College

Section 3—1:10–2 p. m., Monday, Tuesday, Wednesday, Thursday and Friday. Professor Heuser

This course familiarizes the beginner with the common vocabulary and the fundamental grammatical facts of the language so as to enable him to read easy German at sight. Reading forms part of the work from the beginning, together with grammar study, easy exercises in composition, and a considerable amount of colloquial practice in the phrases of everyday life. Although this course is intended for beginners it may be taken with profit by those who have some previous knowledge of the language but are deficient in grammar. Students entering in February should take Course eA8. For Course eA1 no previous knowledge of German is required.

The entire course completes the college entrance requirement (a and x) in elementary German.

Note. Students who have passed Part a of Elementary German for admission but are deficient in Part x (elementary aural test) may register for the oral drill of German eAt-A2 or eA8-A9 (see below), which occupies the last thirty-five minutes of each eighty-five-minute period, as German eA01-A02 or eA08-A09, respectively, 1 point each Session. Fee \$6 each Session. German eA0 may not otherwise be taken separately.

German eA3-A4—Elementary course, first half. Equivalent to Course eA1. Credit I, IV. 2 points each Session. Mr. BACH

9-11 a.m., Saturday. Fee \$12 each Session

This course, continuing throughout the year, is equivalent to Course eAr. It will be followed by eA5-A6, equivalent to eA2, in 1918-1919. The student may also complete the requirement in elementary German by taking eA9 or sA2.

Prerequisite to German eA4: eA3 or sA1. For Course eA3 no previous knowledge of German is required.

German eA8—Elementary course. Credit I, IV. 4 points Spring Session. Mr. Gray

4:30-5:55 p. m., Tuesday, Wednesday and Friday. Fee \$24

Equivalent to German eAI, but given in the Spring Session for students who enter at that time. This course should be followed by German eA9 (equivalent to German eA2). For description see German eAI-A2 above.

German eA9—Elementary course. Credit I, IV. 4 points Winter Session. Mr. Gray

4:30-5:55 p. m., Tuesday, Wednesday and Friday. Fee \$24

Equivalent to German eA2, but given in the Winter Session. For description see German eA1-A2 above.

German eA11-A12—Shorter elementary course. Credit I, IV. 3 points each Session. Dr. BÖHME

7-8:15 p. m., Monday and Thursday. Fee \$18 each Session

This course is equivalent in hours to three-fifths of German eA<sub>I</sub>-A<sub>2</sub>. It includes the fundamental work of the longer course, with a smaller amount of reading and much less practice in writing and especially in speaking. The shorter course is not accepted in satisfaction of the requirement in elementary German, but students who complete it with marked proficiency should be able to pass the college entrance examination.

German eA14—Shorter elementary course. Credit I, IV. 3 points Spring Session. Dr. BÖHME

8:30-9:45 p. m., Monday and Thursday. Fee \$18

Equivalent to German eA11, but given in the Spring Session for students who enter at that time. This course should be followed by German eA15 (equivalent to German eA12), given in the Winter Session. For description see German eA11-A12 above.

German eA15—Shorter elementary course. Credit I, IV. 3 points Winter Session. Dr. Вöнме

8:30-9:45 p. m., Monday and Thursday. Fee \$18

Equivalent to German eA12, but given in the Winter Session. Follows German eA14. For description see German eA11-A12 above.

German eB1-B2—Intermediate course. Credit I, IV. 4 points each Session. Mr. Scholz

4:30-5:55 p. m., Tuesday, Wednesday and Friday. Fee \$24 each Session

This course is intended for students who have satisfied the college entrance requirement in elementary German or have taken Course eA1-A2 or an equivalent. Course eB2 completes the requirement in intermediate German (b and y) for college entrance or for a degree.

The work of this course includes the reading (partly at sight) of about six hundred pages of moderately difficult prose and verse by standard modern and classical authors; grammatical instruction, beginning with a rapid review of the elements and embracing the fundamental principles of syntax and word-formation; exercises in composition and free reproduction, oral and written, with considerable colloquial practice. The texts studied will be selected with refer-

ence to variety of style and vocabulary and will include Freytag's Die Journalisten, Heine's Harzreise, and Schiller's Wilhelm Tell.

Prerequisite: Elementary entrance, German eA2, eA5-A6, or sA3 or an equivalent.

Note. Students who have passed Part b of Intermediate German for admission but are deficient in Part y (Intermediate aural test) may register for the oral drill of German eBt-B2, which occupies the last thirty-five minutes of each eighty-five-minute period, as German eBO1-BO2, I point each Session. Fee \$6 each Session. German eBO may not otherwise be taken separately.

German eB3-B4—Intermediate course, first half. Equivalent to German eB1. Credit I, IV. 2 points each Session. Dr. BÖHME

9-11 a.m., Saturday. Fee \$12 each Session

This course is equivalent to German eBi. It will be followed by eB5-B6, equivalent to eB2, in 1918-1919. The student may also complete the requirement in intermediate German by taking eB2.

German eB11-B12—Shorter intermediate course. Credit I, IV. 3 points each Session. Dr. Betz

7-8:15 p. m., Monday and Thursday. Fee \$18 each Session

This course is equivalent in hours to three-fifths of German eB<sub>I</sub>-B<sub>2</sub>. It includes the fundamental work of the longer course in grammar and composition, with a smaller amount of reading (about 450 pages) and much less oral practice. The shorter course is not accepted in satisfaction of the requirement in Intermediate German, but students who complete it with marked proficiency, particularly if it is supplemented by German e<sub>3</sub>-4 or s<sub>3</sub>, s<sub>4</sub>, should be able to pass the college entrance examination.

Prerequisite: as for German eB1-B2.

German eB14—Shorter intermediate course. Credit I, IV. 3 points Spring Session. Professor Schulze

4:30-5:45 p. m., Tuesday and Friday. Fee \$18

Equivalent to German eB11, but given in the Spring Session. This course should be followed by German eB15. Follows German eA9. For description see German eB11-B12 above.

German eB15—Shorter intermediate course. Credit I, IV. 3 points Winter Session. Professor Schulze

4:30-5:45 p. m., Tuesday and Friday. Fee \$18

Equivalent to German eB12, but given in the Winter Session. Follows German eB14. For description see German eB11-B12 above.

German eE1-E2—Readings in science. Credit I. 3 points each Session. Mr. Scholz

7-8:15 p. m., Monday and Thursday. Fee \$18 each Session

This course is designed to enable the student to read difficult German with facility in order that he may consult technical journals and works of reference in that language in connection with his later professional studies. For further practice in writing and speaking, German e3-4 is recommended to supplement EEI-EE.

For students who intend to take the six-year Collegiate and Engineering Course. Equivalent to the prescribed course in Columbia College.

Prerequisite for Course eE1: eB2, or an equivalent; for eE2: eE1.

German eE4—Readings in science. Credit I. 3 points Spring Session. Mr. Scholz

4:30-5:45 p. m., Monday and Thursday. Fee \$18

Equivalent to Course eE1 of the Winter Session (for description see above). May be followed by German sE2 (equivalent to eE2), given in the Summer Session.

Prerequisite: as for Course eE1.

German eJ1-J2—Readings in newspapers and magazines. Credit I, IV. 3 points each Session. Dr. Böhme

7-8:15 p. m., Tuesday and Friday. Fee \$18 each Session

This course is intended for students who look forward to entering the School of Journalism; also for those who wish to acquire facility in reading as preparation for using the language in the study of history, economics or politics, rather than as an introduction to the study of German or other literature (see German e3-6a). The work includes a review of German syntax, with some practice in writing and speaking (see also German e3-4).

Prerequisite: Intermediate entrance, German eB2, or an equivalent.

German eM1-M2—Readings in medical German. Elementary course. 2 points each Session. Dr. Herrmann

7-9 p. m., Tuesday, College of Physicians and Surgeons, 437 West 59th Street. Fee \$12 each Session

(For description see German eM7 below.)

German eM4—Readings in medical German. Elementary course. 2 points Spring Session. Dr. HERRMANN

7-9 p. m., Wednesday, College of Physicians and Surgeons, 437 West 59th Street. Fee \$12

Equivalent to Course eM1.

(For description see German eM7 below.)

German eM7—Readings in medical German. Advanced course. 2 points Winter Session. Dr. Herrmann

7-9 p. m., Wednesday, College of Physicians and Surgeons, 437 West 59th Street. Fee \$12

These courses are intended for medical students and practitioners who wish to acquire facility in reading medical books and journals in German. They will also afford some practice in hearing German spoken, preparatory to following scientific lectures in that language.

Courses eM1 and eM4 require no previous knowledge of German, but may be taken with advantage by students who have once possessed an elementary reading knowledge and need a rapid review of the elements of grammar before entering upon the study of technical texts. Course eM7 presupposes a good general reading knowledge and fair ability to understand the spoken language. Since these courses are not credited for a degree, there is no fixed requirement and the work will be arranged according to the needs of students.

Students will require for Course eM1, Ball's German Drill Book (Heath), and selected readings to be assigned; for Course eM7, Aschoff's Pathologische Anatomie, Band II.

German e3-4—Composition and oral practice. Intermediate course. Credit I, IV. 1½ points each Session. Fee \$9 each Session

Section I-II:15 a. m.-I2:30 p. m., Saturday. Mr. BACH

Section 2-8:30-9:45 p. m., Monday. Dr. Betz

This course aims to meet the demand for instruction looking toward a practical command of the German language. It is intended for students who possess an intermediate reading knowledge (the equivalent of Course eB2) and have had some previous practice in oral expression. The course may be taken with advantage by students who are taking Course  $eE_1-E_2$ ,  $eJ_1-J_2$ , or  $eS_3-6a$ , and by those who have taken Course  $eB_1-B_2$ ,  $eB_3-B_4$ , or  $eB_{11}-B_{12}$ ; qualified students may take e3-4 parallel with B.

From the outset simple German will be employed as far as possible by instructor and student alike. The subjects pursued and the methods employed will depend in large measure upon individual needs. The conversation will be based upon easy German narrative prose, short poems and, so far as may be practicable, upon daily life and current events, and will be supplemented with frequent dictation exercises. The composition work will consist of translations into German and of original themes upon subjects discussed in class.

German e5a-6a—Introduction to the classics. Selected works of Goethe, Schiller and Lessing. Credit I, IV. 2 points each Session. Professor Hervey 3:20-5 p. m., Wednesday. Fee \$12 each Session

This course aims to make the student familiar with representative works of the classical period and the outlines of its history, and to increase the student's command of vocabulary and idiom by means of supplementary sight reading and by interpretation of the text without the medium of translation.

The course will include the reading and study of selected dramas of Lessing, Goethe and Schiller, with brief discussion of other works in connection with assigned private reading. As the course affords but little practice in speaking and writing German, it is recommended that Course 3-4 or eII-I2 be taken in connection with it.

Prerequisite: Course eB2, or an equivalent.

Text-books required at the beginning: Lessing's *Emilia Galotti*, edited by Winkler (Heath); Rolleston's *Life of Lessing*, published in the 'Great Writers' series (Walter Scott, London).

German e11-12—Composition and oral practice. Advanced course. Credit I, IV. 1½ points each Session. Dr. BÖHME

11:15 a. m.-12:30 p. m., Saturday. Fee \$9 each Session

Intended to continue the work of Course e3-4 or s3-4, but has at the same time a distinctly literary content. It presupposes a good reading knowledge and fair ability to understand the spoken language. This course will be conducted wholly in German. The conversation will be upon topics chosen from the field of literature, daily life and current events. The composition work will consist in the rendering of outlines of the literature read and in the preparation of original themes.

German e101-102—History of German literature. Winter Session from 800 to 1500 A.D.; Spring Session from 1500 to 1800 A.D. Credit II. 2 points each Session. Professor Braun

9-10:40 a.m., Saturday. Fee \$12 each Session

The course consists of lectures, readings from Thomas' Anthology, and essays or reports on assigned topics. The lectures introduce the student to the more important writers and writings and aim to give a clear, though very general, idea of the character of epochs, and the growth and decay of literary tendencies.

German e103-104—Goethe's Faust. First and second parts. Credit II. 3 points each Session. Professor Thomas

9-10:40 a.m., Saturday. Fee \$18 each Session

This course, intended for the enjoyment of *Faust* as poetry, consists of the reading and interpretation, by lecture and discussion, of the entire poem with a few unimportant omissions. Attention is given to its genesis and its significance in the study of Goethe's life and works, to its ethical import and artistic character as a whole.

Prerequisites: Course e5a-6a or an equivalent reading knowledge of German.

Students will require for this course Goethe's Faust. First and Second Parts, 2 vols., edited by Calvin Thomas (Heath).

German e147—Deutsche Stilübungen und Wortstudien. Credit II. 3 points Winter Session. Professor HEUSER

11 a. m.-12:40 p. m., Saturday. Fee \$18

Für Vorgeschrittene, besonders Lehrer, die sich im schriftlichen Gebrauch der deutschen Sprache vervollkommnen wollen. Kleine wöchentliche Aufsätze über moderne deutsche Einrichtungen sollen den Besprechungen in der Klasse zu Grunde gelegt werden.

The attention of students in German is called to the evening classes in Spoken languages, described in a special circular.

#### GREEK

Greek e1—Elementary Greek. Credit I, IV, if followed by Greek e2. 3 points Winter Session. Dr. Relley

4:30-6 p. m., Monday and Thursday. Fee \$18

This course is intended for students who wish to learn the elements of classical Greek. No previous knowledge of the language is required. The course will cover a careful study of the fundamental forms, idioms and grammatical principles of Attic Greek prose. Reading will form part of the work from the beginning and there will be constant practice, both oral and written, in the translation of easy English into Greek.

Text-book: Benner and Smyth, Beginner's Greek Book.

The same as Greek I in Columbia College.

Greek e2—Xenophon and sight translation. Credit I, IV. 3 points Spring Session. Dr. Relley

4:30-6 p. m., Monday and Thursday. Fee \$18

This course consists of readings from Xenophon's Anabasis. It will also include constant practice in sight translation and some oral and written work in Greek prose composition.

Prerequisite: Greek er or its equivalent.

Text-book: Murray, Xenophon's Anabasis.

The same as Greek 2 in Columbia College.

Greek e3—Homer. Credit I, IV. 3 points Winter Session. Dr. Reiley 7-8:15 p. m., Monday and Thursday. Fee \$18

This course will cover the first three books of the *Iliad*. Although the course will be primarily **literary** in purpose, it will include a study of constructions, poetical forms, and prosody.

Prerequisite: Greek e2 or its equivalent.

The same as Greek 3 in Columbia College.

#### HISTORY

History eX1—American history. Texts, discussions, readings, notes, maps. 3 points Winter Session. Mr. Flournoy

4:30-5:45 p. m., Tuesday and Friday. Fee \$18

This course aims to cover the requirements for college entrance and to give a brief survey of the essential facts of American history from the earliest discoveries to the present time. The study will give due emphasis to political, territorial, commercial, industrial and social development. The successful completion of this course will count toward the removal of entrance conditions in history.

History eX2—American history. Texts, discussions, readings, notes, maps. 3 points Spring Session. Fee \$18

Section 1—11 a. m.-12:15 p. m., Tuesday and Friday. Mr. Flournov Section 2—7-8:15 p. m., Monday and Thursday. Mr. Smith

Course eXI repeated in the Spring Session.

History eX3—Ancient history. Texts, discussions, readings, notes, maps. 3 points Winter Session. Mr. FLOURNOY

11 a. m.-12:15 p. m., Tuesday and Friday. Fee \$18

This course aims to cover the requirements for college entrance and to give a brief survey of the essential facts of ancient history from the earliest times to the age of Charlemagne. The study will present the life of the peoples, their social and political development, and the growth and expansion of the nations of the ancient world. The successful completion of this course will count toward the removal of entrance conditions in history.

History eX4—Ancient history. Texts, discussions, readings, notes, maps 3 points Spring Session. Mr. Flournoy

4:30-5:45 p. m., Tuesday and Friday. Fee \$18

Course eX3 repeated in the Spring Session.

History eA1—The foundations of modern Europe. Lectures, readings and discussions. Credit I, IV. 3 points Winter Session. Fee \$18

Section 1—4:30-5:45 p. m., Monday and Thursday. Professor Kendrick Section 2—8:20-9:35 p. m., Tuesday and Friday. Dr. Evans

After a brief survey of the contributions of the ancient world and of the middle ages to European civilization, the course will deal with important political, economic and intellectual achievements from the fifteenth century to the eighteenth. It will treat of the spirit of reform and of revolt, oversea colonization, monarchy by divine right and the various aspects of the 'old régime'.

Texts: Hayes, Syllabus of Modern History; Hayes, Political and Social History of Modern Europe, 2 vols.

This course is equivalent to History AI as given in Columbia College.

History eA2—Modern and contemporary history. Lectures, readings and discussions. Credit I, IV. 3 points Spring Session. Fee \$18

Section 1—4:30-5:45 p. m., Monday and Thursday. Professor Kendrick Section 2—8:20-9:35 p. m., Tuesday and Friday. Dr. Evans

This course is designed as an introduction to current national and international problems. The principal topics will be the intellectual achievements of the eighteenth century, the French Revolution with reference to political and economic changes, the work of Napoleon in reforming France and in reshaping the map of Europe, the industrial revolution, the development of Italian and German unity, the Third French Republic, the rise of Russia, modern social problems and imperialism in Africa and the Orient.

This course is equivalent to History A2 as given in Columbia College.

Section 2-7-8:15 p.m., Tuesday and Friday. Mr. SMITH

History eA4—The foundations of modern Europe. Lectures, readings and discussions. Credit I, IV. 3 points Spring Session. Fee \$18
Section 1—4:30-5:45 p. m., Monday and Thursday. Dr. Morgan

Course eAI repeated in the Spring Session.

History eA5—Modern and contemporary history. Lectures, readings and discussions. Credit I, IV. 3 points Winter Session. Dr. MORGAN 4:30-5:45 p. m., Tuesday and Friday. Fee \$18

Course eA2 given in the Winter Session.

History eA9—The formation of the United States. Lectures, readings and discussions. Credit I, IV. 3 points Winter Session. Mr. Fox 7-8:15 p. m., Monday and Thursday. Fee \$18

After a survey of the European background of American history and the establishment in the New World of European institutions of contrasted types, attention is fixed upon the English settlements, their development, and their experience with the colonial system seeking to protect and control them, resulting finally in revolt, union and the organization of the United States.

Syllabus: Schuyler and Fox, Syllabus of American History.

. This course is equivalent to History A9 as given in Columbia College, and forms an introduction to the advanced study of early American history.

History eA10—The development of American nationality. Lectures, readings and discussions. Credit I, IV. 3 points Spring Session. Mr. Fox

7-8:15 p. m., Monday and Thursday. Fee \$18

Beginning with the triumph of Jeffersonian democracy, this course considers our foreign relations culminating in the War of 1812, and traces the influence of manufactures, the frontier and slavery upon the sentiment of nationalism. The Civil War is treated with emphasis upon its political and constitutional phases; followed by a survey of reconstruction in the southern states, after which attention is paid to the development of railroads, the conflicts of capital and labor, currency and the tariff, imperialism and political readjustment to meet new social needs.

Syllabus as for History eAo.

This course is equivalent to History A10 as given in Columbia College and forms an introduction to the advanced study of later American history.

History e11-12—The history of England. Lectures, readings and discussions. Credit I, IV. 2 points each Session. Professor Schuyler

II a. m.-12:40 p. m., Saturday. Fee \$12 each Session

A survey of English history from the earliest times to the present. Deals with economic, social, intellectual and religious development, as well as with political and constitutional progress.

History e19-20—Contemporary events. A laboratory course. Lectures, conferences and reports. Credit I, IV. 2 points each Session. Professor Schapiro 2:45-4:25 p. m., Thursday. Fee \$12 each Session

Reading of domestic and foreign newspapers, periodicals and annuals. Special topics of current interest will be discussed with a view to correlating such events with those of most importance in modern history, as for example, the growth of imperialism, the development of nationalism and the application of democracy to social problems.

**History e109—The ancient Orient.** Lecture-study course. Credit II 3 points Winter Session. Professor Rogers

II a. m.-12:40 p. m., Saturday. Fee \$18

The history of the chief peoples of the ancient Orient, the Egyptians, Babylonians, Assyrians, Hebrews, Phoenicians and Hittites. A general survey severally and in the interrelations of war, commerce and social life, so treated as to form a preparation for the study of the influence of these peoples upon the Greeks, and also as the background of Hebrew history and literature. The course will supply ample bibliographies and introduce students to the best illustrative material in books and in the city museums. It is especially intended to give a solid foundation to teachers who present this period in the current text-books used in high schools and colleges and to those who teach biblical history and literature.

**History e110—The Hebrew people.** Lecture-study course. Credit II. **3 points Spring Session.** Professor Rogers

11 a. m.-12:40 p. m., Saturday. Fee \$18

The history of the Hebrew people from their earliest beginnings to Alexander the Great. The full resources of modern biblical criticism and archæology will be utilized to present a vivid picture of these significant ancient people. The course will be useful to teachers both in college and in various forms of religious education.

History e121—The history of the intellectual class in Europe: Part I. Credit II. 3 points Winter Session. Dr. Cushing

4:30-6:10 p. m., Tuesday. Fee \$18

This course and History e122 follow changes in interests, opinions and attitude of mind of intellectual classes from the days of the Greek Sophists to our own. Antecedents of intellectual history; primitive reasoning; general range of Greek speculation; Christian conception of man and the world; medieval universities and the revival of Aristotle.

History e122—The history of the intellectual class in Europe: Part II. Credit II. 3 points Spring Session. Dr. Cushing

4:30-6:10 p. m., Tuesday. Fee \$18

Open only to those who have taken History e121. Decline of Scholasticism; intellectual aspects of the 'Renaissance' and the Protestant Revolt; rise of modern scientific spirit; Deism; French Philosophes; novel elements in contemporaneous intellectual life.

History e125—History of Russia. Lecture-study course. Credit II. 3 points Winter Session. Professor Prince

4-4:50 p. m., lecture; 4:50-5:40 p. m., conference, Wednesday. Fee \$18

The work will cover a careful treatment of Russian history from the earliest times to the modern period, with a discussion of the attitude of Russia during the present war and a brief survey of its literary development.

History e126—History of the Balkan states, and of Poland and other non-Russian Slavonic areas. Lecture-study course. Credit II. 3 points Spring Session. Professor Prince

4-4:50 p. m., lecture; 4:50-5:40 p. m., conference, Wednesday. Fee \$18

The history of the Balkan states will be taken up with special attention to their part in the present war. The long struggle of Poland for supremacy with Russia, the religious development of the Czechs in Bohemia, and the modern efforts of the Slovaks to become a people will be treated in outline. The course will close with a sketch of the rise and growth of the Croatian provement.

History e149-150—The development of modern France. Lecture-study course. Credit II. 3 points each Session. Professor Muzzey

11 a. m.-12:40 p. m., Saturday. Fee \$18 each Session

This course deals with the growth of the Bourbon monarchy from the time of Richelieu, the French Revolution and the Napoleonic era, and with the attempts of the various governments during the nineteenth century to realize the political and social ideals of the Revolutionary program.

History e153—European social politics in the nineteenth and twentieth centuries. Credit II. 3 points Winter Session. Professor HAYES

4:10-5:50 p. m., Monday. Fee \$18

Deals with the relation of governmental policy and action to various programs of social reform, such as those of the Classical Economists and the Manchester School, utopian socialism, Marxian and reformist socialism, the anarchism of Proudhon, Bakunin and Tolstoy, trade-unionism and syndicalism, Catholic social reform and the practical achievements of Bismarck and the more recent British Liberals. An introduction to contemporary attempts to solve vexatious social problems.

History e154—European political history since 1879. Credit II. 3 points Spring Session. Professor HAYES

4:10-5:50 p. m., Monday. Fee \$18

Deals with the present governments of Germany, France, Russia and Great Britain, and with their relation, since 1879, to the problems of nationalism, democracy, imperialism and militarism. An introduction to the contemporary Great War.

History e177—Latin America: people; government; resources. Credit II, IX. 3 points Winter Session. Professor Shepherd

7:30-9:10 p. m., Monday. Fee \$18

This course, followed by History e178, aims to supply the knowledge and cultivate the attitude of mind which may enable Americans to understand Latin Americans, appreciate their circumstances, work with them along the lines of material and intellectual progress, and contribute in general to the promotion of inter-American friendship and commerce.

History e178—Latin America: industry; transportation; commerce. Credit II, IX. 3 points Spring Session. Professor Shepherd

7:30-9:10 p. m., Monday. Fee \$18

For description see History e177.

For course in the history of the Eastern question see p. 87

#### HYGIENE

Hygiene e1—Hygiene and sanitation. Credit I, IV. 3 points Winter Session. Professor MEYLAN

5-6:15 p. m., Monday and Thursday. Fee \$18

Winter Session. Health and disease in terms of general biology. Preventive medicine; disease germ carriers, flies, mosquitoes; vaccination, antitoxins, etc. Sanitation and public hygiene; water supplies, food inspection, garbage and sewage removal, etc. Industrial diseases and accidents. Constructive hygiene. National, state and municipal health agencies.

For other courses in sanitation see pp. 39, 40, and 44

#### International Law

See also Politics, pp. 79, 80

International law e103-104—Principles and practice of international law. Lecture-study course. Credit II, IV. 3 points each Session. Professor STOWELL

4:30-6:10 p. m., Thursday. Fee \$18 each Session

This course begins with a brief introductory examination of the basic principles of international law relating to war, peace, and neutrality. Application of principles to selected cases. Critical examination of current questions arising in the international relations of the United States and other countries. Especial emphasis is laid upon the practice of arbitration and the possibilities of its wider extension.

Text-book: Stowell and Munro's International Cases.

No previous knowledge of international law is required, but the prior study of an elementary text-book, such as Lawrence's Principles of International Law, is strongly recommended.

International law e119-120—Modern European and American diplomacy. Credit II, IV. 3 points each Session. Mr. Munro

7:40-9:20 p. m., Wednesday. Fee \$18 each Session

Fundamentals of world politics. The European concert and the balance of power. Alliances and ententes. European crises since 1870. International congresses and conferences. The collapse of European diplomacy, 1914. The state papers critically examined.

American diplomacy during the Civil War, especially with respect to problems of neutrality. Foreign relations of the United States, 1865–1898. Anglo-American arbitrations. The diplomacy of the Spanish-American War. The United States as a world power. Canal diplomacy. The United States and the Great War.

International law e121—History of diplomacy. Credit II. 3 points Winter Session. Mr. MUNRO

11-11:50 a.m., Monday and Tuesday. Fee \$18

Evolution of relations between independent states and manner in which those relations are conducted. History of diplomatic system of Europe from its beginnings to present time, and exposition of preceding religious, dynastic, territorial and commercial struggles. Development of European concert prior to Peace of Westphalia. Examination of most important of general European treaties, beginning with those concluded at Congress of Westphalia, and ending with those of recent date.

International law e122—History of American diplomacy. Credit II 3 points Spring Session. Mr. Munro

11-11:50 a.m., Monday and Tuesday. Fee \$18

Special attention given to history and methods of diplomacy of United States: (1) Diplomacy of Revolution; (2) period from Treaty of Peace of 1783 to termination of War of 1812; (3) from the termination of that War to Civil War; (4) from outbreak of that War to present time.

## International Relations

International relations e101-102—History and growth of international relations. Lecture-study course. Credit II. 3 points each Session. Mr. Munro 7:40-9:20 p. m., Monday. Fee \$18 each Session

Introductory—historical: (A brief consideration of the history of international relations and earlier forms of internationalism); the Roman Empire and the *Pax Romana*; the Christian Church; the Holy Roman Empire; feudalism; the Crusades; Roman law; the Renaissance; formation of national states.

Relations of independent states: Distinction between international policy and international law; formation of national policies; imperialistic policies; international law; arbitration, mediation and good offices.

Study of important national policies: Status quo; balance of power; concert of Europe; open door; Monroe Doctrine; Drago Doctrine.

Problems of international peace: Nationality; race; religious propaganda; protection and free trade; armament; repudiation of debt.

World organization: Hague conferences; formation of group empires; international unions; private international associations; world-wide business organization; the world's financial organization; new inventions; science and education; international law and diplomacy (see above).

International law and diplomacy: The principles of international law as derived from the practice of independent states are studied from the point of view of fundamental law of the world which constitutes the basis of our international society. Diplomacy is studied as a means or instrument to secure the recognition of international law and the protection of national interests and policies.

#### JEWISH COMMUNAL WORK

Economics eX1-X2—Problems of correctional work among the Jews. 2 points each Session. Mr. Kaminsky

7:45-9:25 p. m., Thursday. Fee \$12 each Session

This course attempts to give the underlying principles of correctional work and study delinquency and its treatment among the Jews. The course is divided into three main topics: prevention, probation, and parole. Under the first topic, the development of volunteer agencies and the rise of the Jewish Big Brother movement are discussed. Under the heading of probation work, the development of the probation system and cooperation between volunteer and state probation systems, so far as the Jews are concerned, form the topics for discussion. Under the heading of parole, the after-care work in juvenile and adult reformatory institutions is discussed. Among other subjects considered are the religious work in the various penal institutions, the function of the friendly visitor and chaplain and his mission both inside and outside of the prison walls.

Economics e105-106—The labor problem among the Jews. Credit II. 3 points each Session. Dr. Abelson

4:30-6:10 p. m., Monday. Fee \$18 each Session

This course aims to analyze and interpret the vital facts of the industrial situation, with special reference to the Jewish immigrant group in America. Attention will be given to the

material and human factors that enter into the problem, and which give rise to the chronic condition of conflict between employers and workers in industry in general, and in the needle trades in particular. The experiments in 'industrial peace' in needle trades will be reviewed, and their limitations and possibilities discussed.

#### LATIN

Latin e5—Collegiate Latin. Terence, one play; Horace, Odes. Credit I, IV. 3 points Winter Session. Professor Guernsey

4:30-5:45 p. m., Monday and Thursday. Fee \$18

The same as Latin A2 in Columbia College.

Latin e6—Collegiate Latin. Catullus; Livy (selections). Credit I, IV. 3 points Spring Session. Professor Guernsey

4:30-5:45 p. m., Monday and Thursday. Fee \$18

The same as Latin Ar in Columbia College.

Latin eX1-X2—Elementary Latin and Cæsar. Credit I in Columbia College; IV. 3 points each Session. Miss WyE

8:20-9:50 p. m., Tuesday and Friday. Fee \$18 each Session

The aim of this course is to enable the student to read Latin of average difficulty rapidly and accurately. With this end in view the work is conducted in strict accordance with the principles of the Direct Method. There is, therefore, constant drill, both oral and written in forms, syntax and vocabulary but no effort is made to teach students the art of translation. The time ordinarily spent on English translation is devoted to reading as much Latin as possible. As a consequence mature students, on the completion of this course, usually find their reading knowledge of Latin sufficient for the needs of ordinary professional or literary work.

No previous knowledge of Latin is required for this course.

Students are strongly urged not to elect an elementary course in another language in conjunction with Latin eXI-X2.

Text-books: Paine and Mainwaring, Primus Annus; Decem Fabulae (Clarendon Press); Appleton and Jones, Pons Tironum (Bell); Appleton, Puer Romanus; Clarendon Press, a text edition of Cæsar's Gallic War.

Latin eX3—Cæsar, Nepos and prose composition. Credit I in Columbia College if offered in conjunction with Latin eX1 or eX8; IV. 3 points Winter Session. Miss McClees

4:30-6 p. m., Monday and Thursday. Fee \$18

This course, given in the Winter Session, is planned for students who have studied Latin one year and for those who wish to review the work of the second year of high school.

Latin eX8—Elementary course. Credit I in Columbia College if offered in conjunction with Latin eX2 or eX3; IV. 3 points Spring Session. Mr. Debatin 4:30-5:45 p. m., Monday and Thursday. Fee \$18

A course for beginners.

Latin eY1—Ovid and Vergil. Credit I in Columbia College<sup>1</sup>; IV. 3 points Winter Session. Miss WYE

4:30-6 p. m., Tuesday and Friday. Fee \$18

Latin eYr and Section 1 of Latin eY8 are Direct Method reading courses in Latin poetry. The student's knowledge of what he is reading will be tested by questions in Latin, oral and written, and by frequent Latin summaries. There will be occasional exercises in English translation, but the aim of the course is to teach Latin rather than English and, therefore, such exercises will be infrequent.

Prerequisite: Latin eY3 and eY5 or the equivalent.

Text-books: Strangeways' P. Ovidi Nasonis Elegiaca (Clarendon Press); a text edition of Vergil.

<sup>1</sup>To secure this credit all three courses, Latin eY1 or eY8, eY3 or eY4, and eY5 or eY6, or their equivalents in the Summer Session, must be offered

Latin eY3—Cicero and Sallust. Credit I in Columbia College<sup>1</sup>; IV, if offered in conjunction with Latin eY5 or eY6. 3 points Winter Session. Miss WyE

7-8:15 p. m., Monday and Thursday. Fee \$18

A Direct Method reading course in Latin prose.

The orations for the Manilian Law and for Archias will be read together with the account of the Catilinarian Conspiracy as it appears in Sallust's Catiline and in the Catilinarian orations.

Prerequisite: Latin eX1-X2 or the equivalent.

Text-books: Text editions of Sallust's Catiline and the six orations of Cicero specified; Strachan-Davidson, Cicero (Putnam).

Latin eY4—Cicero and Sallust. Credit I in Columbia College<sup>1</sup>; IV, if offered in conjunction with Latin eY5 or eY6. 3 points Spring Session. Miss McClees

4:30-6 p. m., Monday and Thursday. Fee \$18

Latin eY5—Latin prose composition. Credit I in Columbia College<sup>1</sup>; IV, if offered in conjunction with Latin eY3 or eY4, 2 points Winter Session. Fee \$12. Miss WyE

Section 1-2:10-3 p. m., Tuesday and Thursday

Section 2-8:30-9:20 p. m., Monday and Thursday

This course is designed to give a thorough review of the material which is ordinarily included in the high school course in prose composition.

Prerequisite: Latin eX1-X2.

Text-books: Baker-Inglis, Latin Composition (Macmillan); Gildersleeve, Latin Grammar (Heath).

Latin eY6—Latin prose composition. Credit I in Columbia College<sup>1</sup>; IV, if offered in conjunction with Latin eY3 or eY4. 2 points Spring Session. Miss WYE

2:10-3 p. m., Tuesday and Thursday. Fee \$12

Latin eY5 repeated in the Spring Session.

Latin eY8—Ovid and Vergil. Credit I in Columbia College<sup>1</sup>; IV. 3 points Spring Session. Fee \$18

Section 1-4:30-6 p. m., Tuesday and Friday. Miss WYE

Section 2-7-8:30 p. m., Monday and Thursday. Dr. Reiley

Section I is a Direct Method reading course.

Latin eY1 repeated in the Spring Session.

#### LAW

Law eX1-X2—Nature and functions of law. Credit I, IV. 2 points each Session. Miss WITTE

4:30-6:10 p. m., Monday. Fee \$12 each Session

The object of this course is to acquaint students with the history and nature of legal conceptions and terms. It is not intended for law students but for persons, especially women, who desire a knowledge of legal questions for practical purposes and for general culture.

The course will include, in the Winter Session, the general principles of contracts, agency, personal property, corporations, master and servant, domestic relations; in the Spring Session, real property, deeds, mortgages, dower, wills and the administration of estates.

<sup>&</sup>lt;sup>1</sup> To secure this credit all three courses, Latin eY1 or eY8, eY3 or eY4, and eY5 or eY6, or their equivalents in the Summer Session, must be offered.

Leading cases will be studied and papers written upon topics of individual interest. Documents such as contracts, bills and notes, deeds, bonds, mortgages, wills, and mandates of the courts, will be analyzed in class.

## LIBRARY ECONOMY

The courses in library economy when supplemented by certain cultural classes form a full year's work. On the completion of the work a formal statement is given to students who have satisfied the entrance requirements. Full information is contained in a special bulletin which will be mailed upon request.

All courses in library economy are under the direction of Miss Helen Rex Keller with whom students should consult about arranging their programs. Her office hours are 11:30 a.m.—12 m., Monday, Wednesday and Friday in Room 301 University Hall.

Library economy e1-2—Bibliography. 2 points each Session. Miss Keller

10-10:50 a.m., Friday. Fee \$12 each Session

A study by means of lectures and problems of the standard works of bibliography and reference. General and national bibliography, American, English, French and German. Reference works, i. e., encyclopedias and dictionaries, general and special, indexes to periodicals, and government documents, statistical annuals, quotations, handbooks of information, etc. The history of the book, bibliographies of special subjects, the best books, manuals, etc., will be given by professors of the University.

Text-book: A. B. Kroeger, Guide to the Study and Use of Reference Books.

Library economy e3-4—Cataloguing and classification. 2 points each Session. Miss Keller

9 a. m.-12:30 p. m., Tuesday and Thursday. Fee \$12 each Session

Lectures and practice work based on the A. L. A. catalogue rules; A. L. A. list of subject headings for use in dictionary catalogues, fourth edition; Rules for a Dictionary Catalogue, fourth edition, by C. A. Cutter, and the Decimal Classification by Melvil Dewey.

Winter Session, cataloguing; Spring Session, cataloguing and classification.

**Library economy e5—Library administration.** 2 points Winter Session. Mr. Hicks

9-9:50 a. m., Wednesday. Fee \$12

The course of the book from the publisher through the departments of the library to the reader will be followed in detail of process and record as follows: Book selection and book buying, American publishers, the book order department, its staff, checking of invoices and order files, accessioning; the catalogue department of the large and the small library; book binding and rebinding; charging systems; library statistics; the library budget; the librarian's report; library advertising.

Required reading will be mainly in the files of the Library Journal and Public Libraries.

Library economy e6—Library administration. Seminar. 2 points Spring Session. Miss Keller

10-10:50 a. m., Wednesday. Fee \$12

Individual topics will be presented by the students. Lectures by librarians and visits to libraries. Monday mornings are reserved for visits to libraries. Practice work will be arranged for students who have successfully completed e5.

Library economy e7—Children's work. I point Winter Session. Fee \$6. Mrs. Gould

Section 1-10-10:50 a.m., Saturday

Section 2-5:30-6:20 p. m., Friday

Section 2 will not be given for less than ten students.

This course will take up the planning and equipment, organization and administration of the children's room; children's literature; reading circles and clubs; story-telling; cooperation with the school, home, playground, etc.; book selection, buying of books, simple cataloguing and classification as adapted to children's books.

Library economy e8—Children's work. Advanced course. I point Spring Session. Fee \$6. Mrs. GOULD

Section 1-10-10:50 a. m., Saturday

Section 2-5:30-6:20 p. m., Friday

Section 2 will not be given for less than ten students.

A continuation of Library economy e7.

Library economy e21—Indexing, filing and cataloguing as applied in business. 2 points Winter Session. Miss Bracher

7:45-9:45 p. m., Wednesday. Fee \$12

Lectures and practice. A course in indexing and filing correspondence, clippings, pamphlets, etc. The application of library methods, card and classification systems, especially the Dewey Decimal system, to records in business offices and special libraries, commercial houses, banks and corporations.

Library economy e22—Indexing, filing and cataloguing as applied in business. 2 points Spring Session. Miss Bracher

7:45-9:45 p. m., Wednesday. Fee \$12

Library economy e21 repeated in the Spring Session.

#### MATHEMATICS

Mathematics eX1—Algebra, elementary and intermediate course (complete). 4 points Winter Session. Mr. HOLLCROFT

6:10-7 p. m., Monday, Tuesday, Thursday and Friday. Fee \$24

This course reviews elementary algebra to and beyond quadratics. It includes the fundamental operations, factoring, fractions, ratio and proportion, quadratics, binomial theorem (simple forms), progressions and graphical methods. It is not open to beginners.

Mathematics eX2—Algebra, elementary and intermediate course (complete). 4 points Spring Session. Mr. Wechsler

7:25-8:15 p. m., Monday, Tuesday, Thursday and Friday. Fee \$24
Course eXI repeated in the Spring Session.

Mathematics eX3—Algebra, elementary course. 3 points Winter Session. Mr. Bird

7-8:15 p. m., Monday and Thursday. Fee \$18

This course, planned for beginners, covers elementary algebra to quadratics.

Mathematics eX4—Algebra, elementary course. 3 points Spring Session. Mr. Douglas

8:20-9:35 p. m., Monday and Thursday. Fee \$18

Mathematics eX3 repeated in the Spring Session.

Mathematics eX5—Algebra, intermediate course. 3 points Winter Session. Mr. BIRD

8:20-9:35 p. m., Monday and Thursday. Fee \$18

This course is planned especially for students who take Mathematics esX in Summer Session and for those who wish to complete their requirements in intermediate algebra. The work will begin with a brief review of the more important topics of elementary algebra and proceed to the study of quadratic equations, the binomial theorem and the progressions.

Mathematics eX6—Algebra, intermediate course. 3 points Spring Session. Mr. HOLLCROFT

7-8:15 p. m., Monday and Thursday. Fee \$18

Mathematics eX5 repeated in the Spring Session.

Mathematics eY1—Plane geometry (complete). 4 points Winter Session. Mr. Wechsler

7:25-8:15 p. m., Monday, Tuesday, Thursday and Friday. Fee \$24

The five books of plane geometry, including rectilinear figures, the circle, proportion areas of polygons, regular polygons and circles.

Text-book: Wentworth's Geometry (Wentworth and Smith's revision).

Mathematics eY2—Plane geometry. 4 points Spring Session. Professor McClenon

6:10-7 p. m., Monday, Tuesday, Thursday and Friday. Fee \$24

Mathematics eY1 repeated in the Spring Session.

Mathematics eA1—Trigonometry. Credit I, IV. 2 points Winter Session. Fee \$12

Section 1-4:10-5 p. m., Tuesday and Friday. Dr. RITT

Section 2-8:20-9:10 p. m., Monday and Thursday. Mr. WECHSLER

The subject matter of this course includes trigonometric functions, circular measure, relations between the functions, functions of several angles, inverse functions, trigonometric equations, logarithms, solution of triangles.

Mathematics eX5 or its equivalent is presupposed.

Text-book: Palmer and Leigh's Plane Trigonometry.

Mathematics eA2—Solid geometry. Credit I, IV. 3 points Spring Session. Professor McClenon

7-8:15 p. m., Monday and Thursday. Fee \$18

Mathematics eA3 repeated in the Spring Session.

Mathematics eA3—Solid geometry. Credit I, IV. 3 points Winter Session. Mr. Douglas

4:30-5:45 p. m., Monday and Thursday. Fee \$18

In addition to the usual theorems on lines, planes and solids, the geometry of the sphere, and the development of space intuition, this course lays special stress upon the purely logical side of the subject and the nature of mathematical proof.

Plane geometry is presupposed.

The above course is equivalent to Mathematics A2 or A3 in the Announcement of Columbia College.

Text-book: Hart and Well's Solid Geometry.

Mathematics eA4—Trigonometry. Credit I, IV. 2 points Spring Session. Mr. Wechsler

8:20-9:10 p. m., Monday and Thursday. Fee \$12

Mathematics eAr repeated in the Spring Session.

Mathematics e1—Algebra. Credit I, IV. 3 points Winter Session. Mr. Douglas

7-8:15 p. m., Monday and Thursday. Fee \$18

This course is designed for students who desire to continue with such more advanced topics as permutations and combinations, determinants with applications to the solutions of linear

equations, complex numbers, theory of equations, with reference to the solution of numerical equations of higher degree, undetermined coefficients involving the use of finite series, and partial fractions.

Mathematics eAI or its equivalent is presupposed.

Equivalent to Mathematics I in the Announcement of Columbia College.

Text-book: Hawkes's Higher Algebra.

Mathematics e2—Algebra. Credit I, IV. 3 points Spring Session. Mr. Douglas

7-8:15 p. m., Monday and Thursday. Fee \$18

Mathematics er repeated in the Spring Session.

Mathematics e3—Analytical geometry. Credit I, IV. 3 points Winter Session. Mr. Harton

8:20-9:35 p. m., Monday and Thursday. Fee \$18

Introduction to algebraic geometry, dealing with such topics as coordinate systems, transformations, loci and their equations, the straight line, circle, parabola, ellipse, hyperbola, the geometric interpretation of the general equation of second degree and the elements of threedimensional geometry.

Mathematics eAI and eI or their equivalents are presupposed.

Equivalent to Mathematics 3 or 4 in the Announcement of Columbia College.

Text-book: Smith and Gale's New Analytic Geometry.

Mathematics e4—Analytical geometry. Credit I, IV. 3 points Spring Session. Mr. HARTON

7-8:15 p. m., Monday and Thursday. Fee \$18

Mathematics e3 repeated in the Spring Session.

Mathematics e22—Differential equations. Credit I, IV. 3 points Spring Session. Dr. Ritt

7-8:15 p. m., Monday and Thursday. Fee \$18

A first course in the theory of ordinary and partial differential equations, dealing with the methods of integrating the standard forms, particularly such as are of most frequent occurrence in mathematical physics, with applications.

A year's study of calculus is presupposed.

Equivalent to Mathematics 13 in the Announcement of Columbia College.

Mathematics e75-76—Calculus. Credit I, IV. 4 points each Session. Dr. Ritt

6:35-8:15 p. m., Tuesday and Friday. Fee \$24 each Session

The notions and operations of function, differentiation, and integration are presented with applications to geometry, physics and mechanics.

Mathematics e3 or its equivalent is presupposed.

Equivalent to Mathematics 75-76 in the Announcement of Columbia College.

Text-book: Granville's Differential and Integral Calculus.

Mathematics e78—Calculus. Credit I, IV. 4 points Spring Session. Mr. BIRD

8:20-10 p. m., Monday and Thursday. Fee \$24

Mathematics e75 repeated in the Spring Session.

#### MUSIC

Music eX1-X2—University Chorus. Professor Walter Henry Hall 8:15-9:45 p.m., Monday. Fee for University students expecting credit \$6,

otherwise no charge, excepting for music used. Credit I. I point with special arrangement if taken in conjunction with another course in music

For the practice and performance of choral music in the larger forms. It is expected that concerts will be given during the year, when the University Chorus will join with that of Brooklyn (Brooklyn Oratorio Society) and other centers, forming a large festival chorus. The chorus is open to others besides students of the University. Membership is obtained only after application to Professor HALL for voice trial.

## Music eY1-Y2—University Choir. Professor Walter Henry Hall

7:45-9:30 p. m., Thursday

Membership is composed of specially qualified students as well as a limited number of professional and other singers not affiliated with the University. Men, women and boys are eligible. The choir sings at the Sunday afternoon Chapel services, and will exemplify music discussed in the course on choral music.

The choir rehearsals, including those with boys' voices, may be attended as a demonstration class by members of the course on choral music on payment of a laboratory fee of \$6.

## Music e5—Elementary ear training and dictation. Credit IV. 2 points Winter Session. Mr. Manning

4:10-5:50 p. m., Tuesday. Fee \$12

This course aims to develop the rhythmic sense, the recognition of tones, intervals and chords and the ability to hear mentally the melodies and rhythms that one sees on the printed page and to write, from dictation, music in one and two parts.

An elementary knowledge of notation is required.

## Music e5a—Advanced ear training and dictation. Credit IV. 2 points Winter Session. Mr. Manning

4:10-5:50 p. m., Friday. Fee \$12

Identical with Music e6a, but given in the Winter Session.

# Music e6—Elementary ear training and dictation. Credit IV 2 points Spring Session. Mr. Manning

4:10-5:50 p. m., Tuesday. Fee \$12

Identical with Music es but given in the Spring Session.

## Music e6a—Advanced ear training and dictation. Credit IV. 2 points Spring Session. Mr. Manning

4:10-5:50 p. m., Friday. Fee \$12

This course continues Music e5, developing oral recognition of chords as used in diatonic and chromatic harmony, modulations and the various non-harmonic devices; with written dictation in two to four parts.

A theoretic knowledge of harmony is required.

# Music e7-8—Elementary harmony. Credit I, IV. 2 points each Session. Mr. Ward

4:10-5:50 p. m., Monday. Fee \$12 each Session

This course treats of the fundamental principles of melody writing, chord-construction and chord interrelation through the medium of four-part writing. It will include the study of triads, seventh and ninth chords and their inversions, suspensions and other non-harmonic devices and simple modulation and will involve the harmonizing of given basses and melodies. A knowledge of notation and ability to play simple exercises on the piano are required for admission.

# Music e7a—Elementary harmony. Credit I, IV. 2 points Winter Session. Mr. Ward

1:10-2:50 p. m., Saturday. Fee \$12

This course is identical with Music e8 and is planned for students who have had some instruction in elementary harmony. Music e8a—Elementary harmony. Credit I, IV. 2 points Spring Session. Mr. WARD

1:10-2:50 p. m., Saturday. Fee \$12

This course, beginning in February, is the same as Music e7 and is planned for students who desire to study the fundamental principles of harmony.

Music e9-10—Advanced harmony and elementary form. Credit I, IV. 2 points each Session. Mr. WARD

4:10-5:50 p. m., Saturday. Fee \$12 each Session

A continuation of Course e7-8, taking up the various methods of modulation, altered chords, organ point, etc. Analysis of works by the great composers, and the study of the smaller forms, leading to original composition, constitute an important part of the work of this course. Applicants should consult the instructor before registering.

Music e53-54—Introductory harmony. Credit I, IV. 2 points each Session. Mr. Kraft

11 a. m.-12:40 p. m., Saturday. Fee \$12 each Session

The aim of this course is: first, to lead the student to observe the structure of hymn-tunes, chorals and simple compositions, with reference to the melodic movement of parts and to the character and distribution of chords; second, to give practice in melodic invention and chord combinations expressed in simple constructive work. This work can be adapted to high schools.

Music e55-56—Sight singing. Credit IV. 2 points each Session. Mr. Kraft

9-10:40 a.m., Saturday. Fee \$12 each Session

This course is especially arranged for grade teachers. The work is planned to give material and the method of teaching it from the first grade through the eighth. Ear training and dictation form an important factor of the work.

Music e105-106—Choral music. Credit II. 2 points each Session. Professor HALL

2:50-4:30 p. m., Wednesday. Fee \$12 each Session

This course deals with the history, appreciation and interpretation of choral music. It is meant to be practical rather than theoretical. It begins with Palestrina and his contemporaries, and reviews the various choral schools from that time to this. Material for concert programs of classical and modern choral music will be outlined, with directions and practice in its interpretation. Amateurs who are interested in choral music are eligible as well as professional students. The course will be chorally illustrated. Rehearsals of the University choir, including those with boys' voices, may be attended as a demonstration class by members of the course on choral music on payment of a laboratory fee of \$6.

## Neurology

Neurology e225-226—Neuro-histology and its technique. Credit II, VI. 2 points each Session. Professor Strong

9:30 a. m.-12 m. Saturday. Neurologic Laboratory, College of Physicians and Surgeons, 437 West 59th Street. Fee \$12 each Session

This course is designed to give a general knowledge of the histology of the nervous system, including its fiber tracts, and the principal methods of preparing sections. In this way, it is hoped that the student will be enabled to acquire a series of preparations useful to him in future study or teaching and the knowledge necessary for the prosecution of research.

Neurology e223-224—Neuro-anatomy. The anatomy, histology, development and architectonics of the nervous system of man. Followed by a comparative study of the nervous system of the vertebrates. Lectures, demonstrations, conferences, and laboratory work. Credit II, VI. 3 points each Session. Professor Tilney, Mr. Elwyn, and Mr. Defrem

7-10 p.m., Friday. Neurologic Laboratory, College of Physicians and Surgeons, 437 West 59th Street. Fee \$18 each Session

This course is intended primarily for physicians, psychologists, and advanced students in medicine and zoology. The essentials of the structure of the nervous system will be presented, with special reference to the interpretation of the integrative action and functional control vested in the brain and spinal cord. The aim will be to supply an adequate morphologic basis to those concerned mainly with its function and its organic disturbances.

#### PENMANSHIP

Penmanship e1—Practical course. 2 points Winter Session. Mr. Healey 4:30-5:45 p. m., Tuesday and Friday. Fee \$12

Thorough training will be given in the art of writing by the use of the free arm or muscular movement system. The development will be treated in a scientific manner. Methods of teaching the subject will constitute an important part of the course.

Penmanship e2—Practical course. 2 points Spring Session. Mr. Healey 4:30-5:45 p. m., Tuesday and Friday. Fee \$12

Penmanship er repeated in the Spring Session.

#### PHILOSOPHY

Philosophy eA1—Principles of science: methods, deductive and inductive logic. Lectures, recitations, and individual consultations with the instructor. Credit I, IV. 3 points Winter Session. Dr. Owen

8:20-9:35 p. m., Tuesday and Friday. Fee \$18

This course aims at drilling students in the forms of accurate thinking and at developing skill in detecting errors in reasoning. The principles of inductive and deductive logic will be taught and applied, both critically and constructively, to a large number of arguments.

Text-book: Dewey's How We Think and Jevons' Studies in Deductive Logic.

This course is the same as Philosophy AI in Columbia College.

Philosophy eA2—Principles of science: concepts and problems of philosophy. Lectures, recitations, and individual consultations with the instructor. Credit I, IV. 3 points Spring Session. Mr. Coss

8:20-9:35 p. m., Tuesday and Friday. Fee \$18

In this course the scientific knowledge of the present day will be used as a basis of interpreting and criticizing fundamental philosophic conceptions of human nature and man's place in the universe.

This course is the same as Philosophy A2 in Columbia College.

Philosophy eA4—Principles of science: methods, deductive and inductive logic. Credit I, IV. 3 points Spring Session. Dr. Owen

4:30-5:45 p. m., Tuesday and Friday. Fee \$18

Course eA1 repeated in the Spring Session for students entering at that time. For description see above.

Philosophy eA5—Principles of science: concepts and problems of philosophy. Credit I, IV. 3 points Winter Session. Mr. Coss

4:30-5:45 p.m., Tuesday and Friday. Fee \$18

Course eA2 given in the Winter Session. For description see above.

Philosophy e21—Ethics, theoretical and practical. Credit I, IV. 2 points Winter Session. Dr. COOLEY

4:10-5:50 p. m., Wednesday. Fee \$12

An inquiry into the true principles of conduct, based upon McDougal's Social Psychology and Dewey and Tuft's Ethics with applications to present-day issues.

Philosophy e22—Ethical ideals, past and present. Credit I, IV. 2 points Spring Session. Dr. Cooley

4:10-5:50 p. m., Wednesday. Fee \$12

An historical and critical survey of the ends of life which men have actually put before them as revealed in the literatures, religions, and civilizations of the world.

Philosophy e135-136—Radical, conservative, and reactionary tendencies in present-day morals. Credit II. 3 points each Session. Professor Montague

7:40-9:30 p. m., Friday. Fee \$18 each Session

The course is designed as an introduction to contemporary problems of social or institutional ethics. These problems arise in connection with the conflicting theories as to the true nature and value of the established institutions of human society. The work of the course will, therefore, consist in a general survey of these six fundamental institutions or forms of social relationship, and of the problems and controversies related to each of them. The order of study will be as follows:

- I. The political problem of the powers of the state (anarchism vs. governmentalism).
- 2. The international problem of the federation of the world (pacificism vs. militarism).
- 3. The industrial problem of the status of property (socialism vs. laissez-faire).
- 4. The educational problem of the purpose of the school (vocationalism vs. general culture).
- 5. The woman problem of the organization of the family (feminism vs. the claim of the home).
- 6. The religious problem of the ideal of the church (anti-clericalism vs. christianity).

Philosophy e161-162—History of philosophy. Credit I, IV, 2 points; Credit II, 3 points each Session. Dr. Cooley

4:10-5:50 p. m., Friday. Fee \$18 or \$12 each Session

In the Winter Session the genesis of the fundamental problems of thought, ethics and religion and the treatment they received from ancient and medieval thinkers will be traced. The Spring Session will be devoted to the consideration of these problems from the point of view of the modern world.

Text-books: Weber's History of Philosophy; Windelband's Ancient Philosophy.

Philosophy e171-172—Philosophy of romanticism. Lectures, readings and reports. Credit II. 3 points each Session. Mr. Boggs

4:10-5:50 p. m., Tuesday. Fee \$18 each Session

This course will consider the history of the Romantic Movement in its principal philosophical writings. Rousseau and Diderot in France; Herder, Fichte, Schelling, Goethe, Schiller, Schleiermacher and Hegel in Germany; Coleridge and Carlyle in England will be the authors mainly considered. The relationship of their principal theories to the literary and artistic activity of the period, and to its political and social ideals will be emphasized.

Philosophy e191-192—Philosophy of religion. Lectures, readings and reports. Credit II. 3 points each Session. Mr. Boggs

4:10-5:50 p. m., Monday. Fee \$18 each Session

The point of view to be developed is that religion has a definite function to perform, and the philosophy of religion, therefore, a definite place in philosophic discipline. Instead, however, of

laying down this definite place at the outset, dogmatically, and then considering the phenomena which fall within the field thus defined, the procedure will be to examine the nature of reality as a whole, as it appears in experience, and the kind of questions which it raises, in an attempt to discover if any of these questions are of a kind to look to religion for an answer. An hypothesis will then be laid down, and through a study of the religious life in its individual and in its social phenomena, an attempt will be made to test this hypothesis.

### **PHOTOGRAPHY**

Photography e1—General principles of photography. Lectures. 2 points Winter Session. Dr. Weinrich

7:40-9:30 p. m., Friday. Fee \$12

This course is designed to give the student a sound fundamental knowledge of the theory and practice of photography. It comprises: Introductory lectures on light; the pin-hole camera; a general discussion of lenses; the errors, corrections and properties of photographic lenses; the advantages and disadvantages of different types of lenses and shutters; the testing of lenses and shutters; the adjustments and accessories of different types of cameras and their use; the exposure and exposuremeters; the photographic emulsion in general; the theories of the latent image; an elementary treatment of orthochromatism in conjunction with various processes of color photography; the normal and abnormal development of normal and abnormal exposures and the general treatment of dry-plates and films and a discussion of the more important photographic printing processes.

Whenever practicable, the lectures will be illustrated by lantern slides and experiments.

### PHOTOPLAY COMPOSITION

Photoplay composition e1—Elementary course. 3 points Winter Session Fee \$18. Dr. Freeburg

Section 1-3:10-4:25 p. m., Tuesday

Section 2-7:10-8:25 p. m., Wednesday

This course deals in general with the composition of cinematic plot as contrasted with dramatic and narrative plot. It takes up the main problems of presenting a story impressively through the medium of pictures alone. Special attention is paid to the principles of visua appeal, the effective use of motion picture devices, the art of arousing and sustaining the spectator's interest, the creating of situations and crises, and the logic of emotionally satisfactory endings. Scenarios and detailed synopses are prepared according to the current usage in the studios. Films are exhibited and analyzed before the class.

Each student is required to write scenarios of at least one adaptation and one original photoplay.

Photoplay composition e2—Elementary course. 3 points Spring Session. Fee \$18. Dr. Freeburg

Section 1-3:10-4:25 p. m., Tuesday

Section 2-7:10-8:25 p. m., Wednesday

Identical with Photoplay composition er, but offered in the Spring Session.

Photoplay composition e3—Intermediate course. 3 points Winter Session. Fee \$18. Dr. Freeburg

Section 1-3:10-4:25 p. m., Thursday

Section 2-8:30-9:45 p. m., Wednesday

This course deals specifically with the finer problems of the photoplay as an art. There is discussion of such topics as the psychology of cinema characters, symbolism, allegory, the spectator's imagination, dramatizing natural setting, pictorial composition, and the progression of pictures.

Each student is expected to complete the scenario of an original five-reel photoplay, or to produce other original work of equivalent value.

Prerequisite or parallel: Photoplay composition er or e2 or s2.

Photoplay composition e4—Intermediate course. 3 points Spring Session. Fee \$18. Dr. Freeburg

Section 1-3:10-4:25 p. m., Thursday

Section 2-8:30-9:45 p. m., Wednesday

Identical with Photoplay composition e3, but offered in the Spring Session.

Photoplay composition e5-6—Advanced course. 4 points each Session. Dr. Freeburg

3:10-4:25 p. m., Monday. Fee \$24 each Session

This course is open only to those who have completed successfully the work in the intermediate course. The class is limited to ten students. For description of the work done consult the instructor.

#### PHYSICAL EDUCATION

(For men students only)

Physical education eA1-A2—Gymnastics and games. Credit I, IV. 2 points each Session. Professor Elliott

8:30-9:20 p. m., Monday, Wednesday and Thursday. Fee \$12 each Session

This course comprises free exercises with and without hand apparatus and chest-weight exercises; simple work on gymnastic apparatus, such as horizontal ladder, horizontal bar, ropes, buck, horse, etc., gymnasium games.

Students taking this course for credit in Columbia College will be required to attend one hour a week (Wednesday, 7:30-8:20 p. m. or Monday and Thursday, 5-6:15 p. m.) a course in hygiene and sanitation during the Winter Session and to pass an examination in swimming during the Spring Session.

Physical education eW1-W2—Wrestling. 2 points each Session. Fee \$12 each Session. Mr. Peterson

Section 1—7:30-8:30 p. m., Thursday

Section 2-8:30-9:30 p. m., Thursday

Physical education eY1-Y2—Swimming. 2 points each Session. Fee \$12 each Session. Mr. Kennedy

Section 1—Monday, 8:30-9 or 9-9:30 p. m.

Section 2-Thursday, 8:30-9 or 9-9:30 p. m.

Section 3—Saturday, 8:30–9 or 9–9:30 p. m.

Students may receive instruction on either Monday, Thursday, or Saturday and will have the privilege of using the swimming pool on the remaining evenings.

Physical education eZ1-Z2—Boxing. 2 points each Session. Fee \$12 each Session. Mr. WEEMAN

Section 1-Thursday, 7:30-8:30 p.m.

Section 2—Thursday, 8:30-9:30 p.m.

Students have the privilege of using the gymnasium and swimming pool Monday, Thursday and Saturday evenings from 7 to 10 o'clock.

#### **PHYSICS**

Physics eA1-A2—Elementary course in general physics. 3 hours' lectures and recitations, with 2 hours' laboratory work a week. Credit I, IV. 4 points each Session. Fee \$24 each Session. Mr. Brown, Mr. Goucher, Mr. Ulrey and Mr. Brainin

7:30-9 p. m., Monday and Thursday, lectures. The laboratory work is done in sections of 12 students each, the number of sections and the hours of meeting depending upon the number registering for the course. In the Winter Session of 1916-1917, the sections met as follows:

Section 1-Monday, 5:30-7:30 p. m.

Section 2-Monday, 9-11 p. m.

Section 3—Tuesday, 4-6 p. m.

Section 4-Wednesday, 4-6 p. m.

Section 5—Thursday, 5:30-7:30 p.m.

Section 6—Thursday, 9-11 p. m.

In assigning students to laboratory sections, preference will be given to those who register first.

An introductory course in physics for students who wish to become acquainted with the results, methods and spirit of the science, whether they intend to pursue its study further or wish an elementary knowledge of physics only as a matter of general interest. A knowledge of elementary algebra and geometry is required. Trigonometry is not required.

#### POLITICS

Politics e1-2—American government. Credit I, IV. 3 points each Session. Fee \$18 each Session

4:30-5:45 p. m., Monday and Thursday. Mr. MACMAHON

A general survey of the whole field, based largely on Beard's American Government and Politics (edition of 1914), and designed both for those who wish to teach the subject in the schools and for those who wish to gain an insight into the responsibilities of citizenship. Attention will be confined to national government in the Winter Session; to state, municipal, and local government in the Spring Session.

Identical with Politics 1-2 in Columbia College.

Politics e105—Government of the City of New York. Credit II. 3 points Winter Session. Professor McBain

4:30-6:10 p. m., Tuesday. Fee \$18

An historical survey of the government of the city and a detailed study of the present organization, functions, and methods of the several branches of the government.

Politics e106—American city government. Credit II. 3 points Spring Session. Professor McBain

4:30-6 p. m., Tuesday. Fee \$18

A study of the relation between the city and the state and or the organization, operation and problems of city government in the United States.

Politics e107-108—Comparative government and politics. Credit II. 3 points each Session. Professor SAIT

II a. m.-12:40 p. m., Saturday. Fee \$18 each Session

An analysis of the English, French and German governments with emphasis upon their actual operation and the functioning of political parties. In comparing European and American practice, students will be supposed to have some acquaintance with the working of American institutions.

Politics e117-118—Political constitution of Mexico. Credit II. 3 points each Session. Mr. Obregon

7:40-9:30 p. m., Wednesday. Fee \$18 each Session

A constitutional history of Mexico from the independence of the country up to the present moment.

Study of the present constitution from its various aspects:

- 1. As a mere legal document explaining its provisions and the coordination of its parts.
- From a sociological point of view, as a means to solve the problems of the Mexican people.
- As a socialistic device tending to a new form of distribution of wealth and a radical reform of modern society.
- 4. From the point of view of international law.

#### PRACTICAL OPTICS

The University offers a two years' course in practical optics for students of optometry. A special circular describing these classes will be sent on application to the Secretary of the University.

## **PSYCHOLOGY**

Psychology e1-2—Elements of psychology. Lectures, demonstrations, discussions and recitations. Credit I, IV. 3 points each Session. Fee \$18 each Session. Dr. Poffenberger

Section 1-4:30-5:45 p. m., Tuesday and Friday

Section 2-7-8:15 p. m., Tuesday and Friday

Section 3-8:20-9:35 p. m., Tuesday and Friday

This course is designed to give the student a knowledge of the essential facts and fundamental laws of psychology. It serves as an introduction to the more advanced courses in psychology and philosophy, and also meets the requirements of boards of education for a course in general or pure psychology. The first part of the course deals with the nervous system and sensation, the second part with the higher mental processes.

Psychology e5-6—Psychology for nurses and social workers. Lectures and discussions. Credit IV. 2 points each Session. Miss ROMER

8-9:40 p. m., Tuesday. Fee \$12 each Session

Additional sections may be arranged in any locality for groups of twenty or more.

This course gives briefly the fundamental principles of psychology, stressing constantly their application in social situations arising in the practice of nursing and other forms of community service. Instinct, habit, individual differences, and the influence of heredity and environment will receive special consideration.

Psychology e131—Mental hygiene. Credit II. 3 points Winter Session. Dr. Karpas

5-6:40 p. m., Monday. Fee \$18

The causes, treatment, prevention and social significance of mental defects and disorders will be considered in a way to appeal specially to the social worker. Institutions will be visited, and an evening a month devoted to conferences and special lectures.

Psychology e145-146—Applications of psychology. Lectures, demonstrations and discussions. Credit II. 3 points each Session. Either Session may be taken separately. Professor Hollingworth

4:10-5:50 p. m., Wednesday. Fee \$18 each Session

The attitude, principles and methods of modern psychology will be applied to such fields as vocational guidance, selection of employees, management, industrial motion-study, advertising

and selling, law, social work, medicine, criminology, eugenics, education, and the diagnosis and treatment of mental abnormality.

Psychology e165-166—Social psychology. Lectures, discussions and readings. Credit II. 3 points each Session. Professor Woodworth

6:40-8:20 p. m., Tuesday. Fee \$18 each Session

Course er65 examines human nature as the basis for social life, and considers the social instincts and tendencies, the social traits, varieties of social behavior, and the psychology of crowds and peoples. Course er66, which can be taken separately, centers about the problem of the mental constitution of the social group, and considers individual, sex, national and racial differences, and other aspects of psychological knowledge which are of importance to the student of society and social problems.

Prerequisite: Psychology e1-2 or an equivalent.

Business e117-118—Psychology of advertising and selling. Credit II, IX. 2 points each Session. Professor HOLLINGWORTH

7:40-9:20 p. m., Monday. Fee \$12 each Session

For description see p. 33.

### RELIGION AND RELIGIOUS EDUCATION

Religion e5—Survey of Old Testament literature and history. Lectures and discussions. I point Winter Session. Mrs. Merrett

4:10-5 p. m., Friday. Fee \$6

This course presents the fundamental structure and ideas of the Old Testament as a background for teaching or for general knowledge. The compilation of the literature, the main historical outline, the value and meaning of the folklore and traditional stories, the poetic and prophetic elements, the Apocalyptic literature.

(An arrangement can be made to give this course outside the University.)

Religion e6—The religious education of children. Designed for parents and teachers. I point Spring Session. Mrs. Merrett

4:10-5 p. m., Friday. Fee \$6

The religious aspects of child life and growth, the place of home and church in religious education, training in worship, selecting and grading the Biblical material. Outlines. Preparation and plan for model lessons. Story telling—the psychology of the story, dramatization of stories. (An arrangement can be made to give this course outside the University.)

### ROMANCE LANGUAGES

All the undergraduate courses in Romance languages in Extension Teaching are under the general supervision of Professor Loiseaux; office hours, 4:15 p. m., Tuesday and Friday, Room 201 East Hall

### French

French eA1-A2—Elementary course. Credit I, IV. 4 points each Session. Fee \$24 each Session

Section I—4:30-5:55 p. m., Tuesday, Wednesday and Friday. Mr. FERRARU Section 2—8:30-9:55 p. m., Monday, Wednesday and Thursday. Dr. Mantz College sections 3 and 4 limited to men matriculated in Columbia College.

Section 3-11-11:50 a. m., Monday, Tuesday, Wednesday, Thursday and Friday. Mr. Rockwood

Section 4—I:10-2 p. m., Monday, Tuesday, Wednesday, Thursday and Friday. Mr. Wilkinson

This course is intended for students who have no previous knowledge of French.

The instruction is planned so as to enable students to read at sight ordinary French prose. Reading and oral drill will constitute a large part of the work of the course. In connection with the reading, a careful study of the essentials of grammar and syntax will be taken up, together with simple composition. Attention will be paid to correct pronunciation, and as far as possible to the understanding of simple spoken French.

Note. Students who have passed Part (a) of elementary French for admission, as described in the current Announcement of Entrance Examinations and Undergraduate Admission, but are deficient in Part (x) may register for the oral drill of French eAt-A2 or eA8, eA9, which occupies the last thirty-five minutes of each eighty-five minute period, as French eO1-O2 or eO8-O9, one point each Session. Those who have passed Part (b) of Intermediate French for admission but are deficient in Part (y) may register for the oral drill of French eBt-B2 or eB8, eB9, the last thirty-five minutes of each period, as French eO21-O22, one point each Session.

French eA3-A4—Elementary course. Credit I, IV. 1½ points each Session. Mr. SWANN

9:30-10:45 a. m., Saturday. Fee \$9 each Session

Equivalent to Course eA11. For description see French eA11.

French eA5-A6—Elementary course. Credit I, IV. 1½ points each Session. Mr. SWANN

11 a. m.-12:15 p. m., Saturday. Fee \$9 each Session

Equivalent to French eA12. This course is supplementary to French eA3-A4.

French eA8—Elementary course. Credit I, IV. 4 points Spring Session. Dr. Mantz

4:30-5:55 p. m., Tuesday, Wednesday and Friday. Fee \$24

Equivalent to French eAI, given in the Spring Session for students who enter at that time. This course should be followed by French eA9 in the succeeding Session. For description see French eAI-A2 above.

French eA9—Elementary course. Credit I, IV. 4 points Winter Session. Dr. Mantz

4:30-5:55 p. m., Tuesday, Wednesday and Friday. Fee \$24

Equivalent to French eA2. Planned also for students who began the study of French in the Summer Session. It is suitable for persons who have had one year of French.

French eA11-A12—Shorter elementary course. Credit I, IV. 3 points each Session. Fee \$18 each Session

Section 1—4:30-5:45 p. m., Tuesday and Friday. Dr. ALEXANDER Section 2—7-8:15 p. m., Monday and Thursday. Dr. CLARK

Section 3—4:30-5:45 p. m., Monday and Thursday. Dr. Alexander

This course is also intended for students who have no previous knowledge of French and differs from French eAI-A2 in the following particulars: It meets twice weekly for a period of seventy-five minutes; the additional oral drill is eliminated; and emphasis is placed upon reading. A careful study of the essentials of grammar and syntax will be taken up together with simple composition. Attention will be paid to correct pronunciation, so far as time allows to the understanding of simple spoken French.

French eA14—Shorter elementary course. Credit I, IV. 3 points Spring Session. Mr. Swann

7-8:15 p. m., Tuesday and Friday. Fee \$18

Equivalent to French eAII, given in the Spring Session for students who enter at that time. This course should be followed by French eAII in the succeeding Session. For description see French eAII—AI2 above.

French eA15—Shorter elementary course. Credit I, IV. 3 points Winter Session. Mr. Swann

7-8:15 p. m., Tuesday and Friday. Fee \$18

Equivalent to French eA12, given in the Winter Session. For description see French eA11-A12 above.

French eB1-B2—Intermediate course—grammar, reading and composition. Credit I, IV. 4 points each Session. Mr. OLINGER

4:30-5:55 p. m., Monday, Wednesday and Thursday. Fee \$24 each Session

The work will include a review of the essentials of grammar and much oral practice in reading and conversation. The reading will consist of narrative and historical texts and several plays.

French eB3-B4—Intermediate course—grammar, reading and composition. Credit I, IV. 1½ points each Session. Dr. MANTZ

12:15-1:30 p. m., Saturday. Fee \$9 each Session

Equivalent to French eB11. For description, see French eB11-B12 below.

French eB5-B6—Intermediate course. Credit I, IV. 1½ points each Session. Dr. Mantz

2-3:15 p. m., Saturday. Fee \$9 each Session

Equivalent to French eB12. Follows French eB3-B4.

French eB8—Intermediate course—grammar, reading and composition. Credit I, IV. 4 points Spring Session. Dr. CLARK

4:30-5:55 p. m., Tuesday, Wednesday and Friday. Fee \$24

Equivalent to French eB1, given in the Spring Session. This course should be followed by French eB9 in the succeeding Session. For description, see French eB1-B2 above.

French eB9—Intermediate course—grammar, reading and composition. Credit I, IV. 4 points Winter Session. Dr. CLARK

4:30-5:55 p. m., Tuesday, Wednesday and Friday. Fee \$24

Equivalent to French eB2, given in the Winter Session. For description, see French eB1-B2 above.

French eB11-B12—Shorter intermediate course. Credit I, IV. 3 points each Session. Fee \$18 each Session

Section 1—4:30-5:45 p. m., Monday and Thursday. Professor Spiers Section 2—7-8:15 p. m., Monday and Thursday. Dr. Mantz

This course differs from French eB1-B2 in placing the emphasis on the essentials of grammar and reading rather than on oral practice and conversation.

French eB14—Shorter intermediate course. Credit I, IV. 3 points Spring Session. Dr. Mantz

7-8:15 p. m., Tuesday and Friday. Fee \$18

Equivalent to French eB11, given in the Spring Session. This course should be followed by French eB15 in the succeeding Session. For description see French eB11-B12 above.

French eB15—Shorter intermediate course. Credit I, IV. 3 points Winter Session. Dr. Mantz

7-8:15 p. m., Tuesday and Friday. Fee \$18

Equivalent to French eB12, given in the Winter Session. For description see French eB11-B12 above.

French e3-4—Practical course and introduction to French literature. Composition, readings and lectures. Credit I, IV. 3 points each Session. Professor FORTIER

4:30-5:45 p. m., Tuesday and Friday. Fee \$18 each Session

The work is to consist of dictations and conversations on the history of French literature, supplemented by the reading of selected works from representative authors. Students will also be required to write themes in French.

Limited to twenty students.

Equivalent to French 3-4 in Columbia College, and Barnard College-

French e5-6—General survey of French literature in the seventeenth century. Credit I, IV. 3 points each Session. Professor LOISEAUX

4:30-5:45 p. m., Tuesday and Friday. Fee \$18 each Session

The subject of the course is the history of French literature during the century of Louis XIV. The principal authors studied will be Descartes, Pascal, Bossuet, Madame de Sévigné, La Rochefoucauld, La Bruyère, Corneille, Molière, Racine, Boileau and La Fontaine. The course is conducted entirely in French.

Text-books: Lanson, Histoire de la Littérature Française (eleventh edition), and the works of the authors named above.

Equivalent to French 5-6 as given in Columbia College and Barnard College.

French e9-10—Advanced composition and practice in speaking French. Credit I, IV. 3 points each Session. Professor Fortier

4:30-5:45 p. m., Monday and Thursday. Fee \$18 each Session

The objects of this course are to give students a thorough appreciation and a certain facility in the use of the French language as an instrument of expression. The exercises will consist of composition, reading aloud, and letter writing. During the Spring Session, some attention will be given to the principles of French versification.

Text-books: Larive et Fleury, Troisième année de Grammaire; La Fontaine, Fables; Leune, Difficult Modern French; Blanchard, French Idioms.

For outside reading: Reinach, L'Eloquence politique en France au XIX<sup>e</sup> siècle. Limited to eighteen students.

#### Italian

Italian e1-2—Elementary course. Credit I, IV. 3 points each Session. Mr. Montecchi

7-8:15 p. m., Monday and Thursday. Fee \$18 each Session

The aim of this course is to impart an accurate reading knowledge of modern Italian, together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax, and in Italian e2 special attention will be paid to composition.

Italian e3-4—Advanced course. Credit I, IV. 3 points each Session. Mr. Montecchi

7-8:15 p. m., Tuesday and Friday. Fee \$18 each Session

In this course much more reading is done than in Italian e1-2. The two courses together may be considered a preparation for the graduate courses in the University.

## Portuguese

Portuguese e1-2—Elementary course. Credit I, IV. 3 points each Session. Mr. Bruce

7:15-8:30 p. m., Tuesday and Friday. Fee \$18 each Session

A course for students who are beginning their work in Portuguese. The aim of this course is to get a mastery of the elements of the Portuguese language as a basis for intelligent reading, composition, conversation and general instruction in a more advanced course. The Portuguese language will be very largely used as a means of communication, promoting thus a more rapid acquisition of a correct pronunciation and general familiarity with the language.

Portuguese e3-4—Advanced course. Credit I, IV. 3 points each Session. Mr. Bruce

8:20-9:35 p. m., Tuesday and Friday. Fee \$18 each Session

For students who have already taken elementary Portuguese or whose previous work in Spanish or other Latin languages gives a basis for profitable prosecution of this course.

Attention will be given especially to Portuguese composition, sight reading and current conversation. A general notion and appreciation of leading Brazilian and Portuguese authors will be sought for.

## Spanish

Spanish e1-2—Elementary course. Credit I, IV. 3 points each Session. Fee \$18 each Session

Section 1-3:10-4:25 p. m., Monday and Thursday. Mr. IMBERT

Section 2-3:10-4:25 p. m., Monday and Thursday. Mr. AGRAMONTE

Section 3-3:10-4:25 p.m., Tuesday and Friday. Mr. Torres

Section 4-4:30-5:45 p. m., Tuesday and Friday. Mr. AGRAMONTE

Section 5-4:30-5:45 p. m., Tuesday and Friday. Mr. Torres

Section 6-7-8:15 p. m., Tuesday and Friday. Mr. Russell

Section 7-7:30-8:45 p. m., Monday and Thursday. Mr. WILKINS

Section 8-6:10-7:25 p. m., Tuesday and Friday. Mr. Mercado

The aim of this course is to impart an accurate reading knowledge of modern Spanish together with a correct pronunciation. The work will consist of a careful study of the elements of grammar and syntax; and in Spanish e2 special attention will be paid to Spanish composition.

Outside reading: Valera, El Pajaro Verde; Le Sage, Gil Blas (Padre Isla's translation). Equivalent to Spanish 1-2 as given in Columbia College and Barnard College.

Spanish e3-4—Advanced course. Credit I, IV. 3 points each Session. Fee \$18 each Session

Section 1-4:30-5:45 p. m., Monday and Thursday. Professor GERIG

Section 2-4:30-5:45 p. m., Tuesday and Friday. Mr. Russell

Section 3—7-8:15 p. m., Monday and Thursday. Mr. Russell

Second year course. A continuation of Spanish e1-2, in which emphasis will be placed on rapid reading of modern prose, on advanced composition and conversation.

Equivalent to Spanish 3-4 as given in Columbia College and Barnard College.

Spanish e3a—Advanced course. Credit I, IV. 3 points Winter Session. Mr. WILKINS

8:45-10 p. m., Monday and Thursday. Fee \$18

Spanish e4 given in the Winter Session.

Spanish e5-6—Practical course and introduction to Spanish literature. Credit I, IV. 3 points each Session. Mr. IMBERT

4:30-5:45 p. m., Tuesday and Friday. Fee \$18 each Session

The work consists of compositions, conversations and dictations on the history of Spanish literature supplemented by the reading of selected works by representative authors. Students will be required to write themes and reports in Spanish.

Equivalent to Spanish 5-6 as given in Columbia College.

Spanish e8—Elementary course. Credit I, IV. 3 points Spring Session. Fee \$18

Section 1—4:30-5:45 p. m., Monday and Thursday. Dr. CLARK Section 2—6:10-7:25 p. m., Monday and Thursday. Mr. WILKINS

A course for students who have no knowledge of Spanish. Equivalent to Course er above.

Spanish e9—Elementary course. Credit I, IV. 3 points Winter Session. Fee \$18

Section 1—4:30-5:45 p. m., Monday and Thursday. Dr. CLARK Section 2—6:10-7:25 p. m., Monday and Thursday. Mr. WILKINS

Follows Spanish e8 and is planned for students who have had a half year of Spanish.

Spanish e11-12—Elementary course. Credit I, IV. 2 points each Session. Mr. Wilkins

3:10-4:50 p. m., Saturday. Fee \$12 each Session

A course for students having no knowledge of the language.

Spanish e13—Advanced course. Credit I, IV. 2 points Winter Session. Mr. WILKINS

1:30-3:10 p. m., Saturday. Fee \$12

Continuation of Spanish e11-12.

Spanish e14—Elementary course. Credit I, IV. 2 points Spring Session. Mr. Wilkins

11 a. m.-12:40 p. m., Saturday. Fee \$12

A beginning course. Spanish ell repeated in the Spring Session.

Spanish e15-16—Advanced composition and Spanish conversational practice. Credit I, IV. 3 points each Session. Mr. AGRAMONTE

4:30-5:45 p. m., Monday and Thursday. Fee \$18 each Session

The object of this course is to give the student practice in spoken and written Spanish with special reference to commercial practice, including composition, reading, dictation, and letter writing. Attention will be paid to legal, commercial and technical terms in most common use.

The attention of students in Romance languages is called to the evening classes in Spoken languages described in a separate bulletin.

## **SANITATION**

Sanitation e195—Sanitary science and public health. Credit II. 3 points Winter Session. Mr. Brown

7:30-9:10 p. m. Monday. Fee \$18

Health and disease; infection and contagion, drinking water, ice, milk, vegetables, shell fish etc., as vehicles of disease; flies, mosquitoes and other insects as carriers of disease; general

problems of public health and sanitation. A course for public health nurses and others interested in public health work.

Not given for less than six students.

For other courses in sanitation and sanitary engineering see pp. 39, 40, 44 and 65

## SECRETARIAL CORRESPONDENCE

Secretarial correspondence e1-2—Letter writing. 3 points each Session. Fee \$18 each Session

Section 1—4:30-5:45 p. m., Monday and Thursday. Miss Hull Section 2—7-8:15 p. m., Monday and Thursday. Dr. Scarborough

This course is intended for those desiring employment as social secretaries, for those desiring to gain facility in various forms of letter writing for personal use, and for those desiring advanced work in the problems of style in written expression. It aims to establish standards of judgment for form and expression in accordance with the best current usage; to comprehend that usage from two angles, a study of the development of letter writing, and an analysis of the principles underlying present letters; to develop individuality of style. The content of the course is twofold: constant practice in writing, with critical work on current letters, and study of the best published letters. The Winter Session consists of drill in conventions of form, and in the essential qualities of all letters; the emphasis is upon the letter as an expression of the relation between the writer and the receiver. The Spring Session contains a study of the letter as a social and personal document, with work toward flexibility and power of individual expression.

English eA1-A2 or its equivalent in collegiate composition training is prerequisite.

## SECRETARIAL STUDIES

The University offers through its School of Business and the Department of Extension Teaching courses in secretarial studies. In Extension Teaching these normally require two years.

A special circular will be sent on application to the Secretary of Columbia

University.

## SLAVONIC

Slavonic e192—The elements of the Russian language with instruction in reading, writing and speaking. Credit II. 3 points Spring Session. Professor Prince

4-5.40 p. m., Friday. Fee \$18

The object of this course is to enable students, who have arrived too late to begin Russian in the regular University course, to commence their study of the language during the Spring Session.

Slavonic e103-104—The history of the Eastern question. Lectures and conferences. Credit II. 3 points each Session. Mr. KALENDERIAN

7:30-9:10 p. m., Wednesday. Fee \$18 each Session

This course deals with the fate of the Ottoman Empire in Europe, Asia and Africa. A brief survey of the Byzantine and Latin Empires; the conquest of the Turks; the fall of Constantinople and its influence on the successive phases of European diplomacy. The history of the Eastern question during the eighteenth century; Napoleon's Oriental projects; the Holy Alliance and the Eastern question up to the present time, including the present war.

Attention is to be given, with the historical side of the question involving the national and international aspects, to the racial characteristics, the religions, economic and social conditions

and cultural background of the peoples involved.

#### SOCIOLOGY

Sociology

Sociology e51—Introductory sociology: elementary principles of sociology. Lectures, readings and laboratory. Credit I, IV. 3 points Winter Session. Fee \$18. Mr. SMITH and Mr. DAVIES

Section 1-3:10-4 p. m., Tuesday and Thursday

Section 2-7:40-9:30 p. m., Wednesday

Laboratory-two hours per week by appointment

A non-technical course for mature students of society. The place of sociology among sciences. Analysis of the physical, biological and psychological factors conditioning social organization. Comparative study of the fundamental concepts of sociologists from Comte to Giddings. Sociological theories of human progress.

Sociology e51a—Course e51 without laboratory work. Fee \$12. 2 points Winter Session. Mr. SMITH and Mr. DAVIES

Section 1-3:10-4 p. m., Tuesday and Thursday

Section 2-7:40-9:30 p. m., Wednesday

Laboratory—two hours per week by appointment

Sociology e52—Practical sociology: social conditions in the United States. Lectures, readings and laboratory. Credit I, IV. 3 points Spring Session. Fee \$18. Mr. SMITH and Mr. DAVIES

Section 1-3:10-4 p. m., Tuesday and Thursday

Section 2-7:40-9:30 p. m., Wednesday

Laboratory—two hours per week by appointment

A presentation of facts describing actual conditions of the social population of the United States. Population: density, increase, distribution, nativity, sex, age groups, marital condition, mortality, etc. Record of marriage and divorce. Nature and development of our educational and industrial organizations. Special social problems in the United States, including public health, temperance, prevention of crime, etc.; also a community study to be made by each student.

Sociology e52a—Course e52 without laboratory work. Fee \$12. 2 points Spring Session. Mr. SMITH and Mr. DAVIES

Section 1-3:10-4 p. m., Tuesday and Thursday

Section 2-7:40-9:30 p. m., Wednesday

Sociology e141—Social problems: immigration and social assimilation. Lectures, readings and discussions. Credit II, IV. 3 points Winter Session. Mr. Shenton

1:10-3 p. m., Thursday. Fee \$18

Immigration as a world movement. Why people migrate. Social significance of immigration and intra-migration, especially in the United States. Studies of nativity, race-mixture, social heterogeneity, standards of living, etc. The problem of assimilation or 'Americanization'. Constructive plans for the regulation of immigration and for the assimilation of the alien.

Sociology e142—Social problems: social betterment. Lectures, readings and discussions. Credit II, IV. 3 points Spring Session. Mr. Shenton 7:40-9:30 p. m., Wednesday. Fee \$18

The development of movements for human betterment, including eugenics, euthenics, social legislation, socialized philanthropy and social education. Problems of normal and abnormal society. Constructive sociological criticism of various methods of social reform.

Sociology e143—Social institutions: institutions of component society. Lectures, readings, discussions and exercises. Credit II, IV. 3 points Winter Session. Mr. Shenton

7:40-9:30 p. m., Thursday. Fee \$18

The effort of society to exert social self-control by means of folk-ways, folk-lore, 'Mores', traditions and social institutions. Origin, development and present functions of the more fundamental social institutions and their present tendencies. Those institutions having their origin in the earliest forms of society, i. e., kinship, religion and politics, will be discussed during this Session.

Full course credit will be given only to students who have satisfactorily completed a study of

some particular social institution.

Sociology e144—Social institutions: institutions of constituent society. Lectures, readings, discussions and exercises. Credit II, IV. 3 points Spring Session. Mr. Shenton

7:40-9:30 p. m., Thursday. Fee \$18

Educational institutions will be studied in respect to their social beginnings, the crises in their development and their present functions in society. Social self-control will be further studied as it operates through legal institutions (including status, contract and social legislation); industrial institutions (including property and labor); political institutions (including leadership and organization); and the general institutions of democratic society. Policies of laissesfaire as opposed to those of social control. Relations of individuals and social institutions to society.

Sociology e145—Social policies: general problems of social adjustment. Lectures, readings and discussions. Credit II, IV. 3 points Winter Session. Mr. Thomas

7:40-9:30 p. m., Tuesday. Fee \$18

Care of the weak by the strong, historically considered. Volunteer propagandist organizations. Philanthropy and the social surplus. Federal, state, county, civic and private philanthropic organizations. Other definite movements and organizations for social adjustment.

Sociology e146—Social policies: special problems of social adjustment. Lectures, readings and discussions. Credit II, IV. 3 points Spring Session. Mr. Thomas

7:40-9:30 p. m., Friday. Fee \$18

The care of the poor. Paupers both in and out of almshouses. Care of the sick. Dependent children. Care for the feeble-minded and the insane. In all cases including consideration of practical ways and means and development of critical and constructive programs.

Sociology e147-148—Social statistics: principles and methods. Lectures, readings and laboratory exercises. Credit II. 3 points each Session. Mr. Ross

7:40-9:30 p. m., Tuesday and Thursday. Fee \$18 each Session

The elements of statistical theory that are useful in the analysis of social problems. Data gathering, the several forms of the average, measures of dispersion, reliability of measures, fundamentals of correlation. Organization of investigations, analysis of material and methods of presentation. The course is intended to provide the student with the fundamental tools for sociological research of a statistical nature and for social investigation.

Sociology e149—Sociological statistics: principles and methods. Lectures, readings and laboratory exercises. Credit II. 3 points Winter Session. Mr. Ross

7:40-9:30 p. m., Tuesday. Fee \$18

Methodology primarily applicable to the data of sociology. Methods of classification qualitatively expressed, information, consistency, independence, contingency, and the general

methods of association. Transformation of discrete information into series of amount, the development of scales. A course designed primarily for advanced students of sociology who wish to pursue inductive studies in that subject.

Prerequisite, Economics 209-210 or Sociology e147-148.

Sociology e150—Social statistics: principles and methods. Introductory. Lectures, readings and laboratory exercises. Credit II. 3 points Spring Session. Mr. Ross

7:40-9:30 p. m., Wednesday. Fee \$18

Sociology e151—Principles of sociology. Lectures, readings, discussions and exercises. Credit II, IV. 3 points Winter Session. Mr. Shenton

7:40-9:30 p. m., Monday. Fee \$18

A course in social theory. A statement and study of Professor F. H. Giddings' principles of sociology up to the present time. The scope and methods of sociology. Theories of social evolution, social causation and organization. The development of social consciousness and of the social mind. Comparative study of various theories of social progress.

Credit for full course will be given only to those who, in addition to the regular work, complete and are examined in a course of specially assigned readings, and who have done certain research or field work.

Text-book: Giddings, Descriptive and Historical Sociology.

Sociology e152—Social evolution. Lectures, readings and discussions. Credit II, IV. 3 points Spring Session. Mr. Shenton

7:40-9:30 p. m., Monday. Fee \$18

A study of evolution and of progress, a course in comparative social theories. Beginnings of human association and of the development of the social mind and social will. Studies of the integration and disintegration of civilizations. Continuous societal security. Evolution of sovereignty. Rise of liberty and democracy. Costs of democracy. Individual 'rights'. Text-book: Bristol. Social Adaptation.

Sociology e315-316—Seminar. Discussions, research and thesis preparation. Credit II. 3 points each Session. Mr. Shenton

7:40-9:30 p. m., alternate Tuesdays, beginning October 6. Fee \$18 each Session Methods of sociological study and research. Sociological sources. Work supplementing Sociology e141, e143, and e144—social assimilation and social institutions. Attention will be given to the preparation of the theses required of all candidates for the degree of A.M. in sociology.

Social Science: Special Courses

Social science e131-132—Practical penal problems. Lectures, discussions and reports of first-hand investigations. Credit II. 3 points each Session. Dr. Whitin

10-12 a.m., Saturday. (Laboratory by special assignment.) Fee \$18 each Session

The course deals with the application of scientific method to the penal problem, the economic interpretation of the evolution of the present penal institution, the legal status of the prisoner, administrative control, the indeterminate sentence, the receiving station, the farm-industrial prison, the employment of ex-prisoners, private agencies, capital punishment, the local jail, preventive measures and the juvenile institution, self-government vs. 'the honor system', possibilities in social reconstruction.

Social science e134—Practical penal problems. Lectures, discussions and reports of first-hand investigations. Credit II. 3 points Spring Session. Dr. Whitin

4-6 p. m., Wednesday. Fee \$18

Social science e131 repeated in the Spring Session.

Social science e135—Practical penal problems. Lectures, discussions and reports of first-hand investigations. Credit II. 3 points Winter Session. Dr. Whitin

4-6 p. m., Wednesday. Fee \$18

Social science e132 given in the Winter Session.

## STENOGRAPHY AND TYPEWRITING

# Isaac Pitman System

The morning, afternoon, and evening courses described below are planned for students who contemplate performing secretarial duties and for teachers and others who desire a thorough and practical knowledge of stenography and typewriting. A class for those who have no knowledge of the subjects is started at the beginning of each Session; such students, however, are likely to accomplish more by entering the class which begins in September and continues through the year without the long summer vacation intervening.

In addition to a careful presentation of the principles of shorthand and typewriting, instruction is also given in the following: Secretarial and stenographic duties, common business forms, practical information for typists, the method of displaying the subject matter of a letter and its different parts and forms, the methods of teaching shorthand and typewriting, the cutting of stencils, the operation of the mimeograph, the different parts of the typewriter, its care and repair, the common business abbreviations, the handling of the telephone, information about the mails, the preparation of outgoing and incoming mail, the writing of telegrams and cablegrams, shipping and the papers involved, the common remittance forms, the method of taking dictation, the meeting of office callers, office reference books, etc. The work is carried on as nearly like that of a business office as is possible to be done in a classroom. The touch method is taught in all typewriting classes.

Before receiving final credit for the second Session in stenography and typewriting, students must complete a week of practice work in the office of the Director.

Students registered in all stenography classes must pass an examination in elementary English, including grammar, composition, spelling, and punctuation, before receiving credit for the course.

Columbia University is in possession of a shorthand library consisting of 1,200 volumes which are at the disposal of students.

The courses in stenography and typewriting are under the general supervision of Mr. William E. Harned, Room 509 Journalism.

# Morning Courses

The morning courses are completed in one college year of thirty weeks. Students completing the courses are able to write shorthand at the rate of one hundred and twenty-five words a minute and to transcribe their notes on the typewriter at the rate of thirty words a minute.

In order to obtain the best results, students who register for stenography are expected to take the course in typewriting which corresponds to it, as designated below.

Stenography e1-2—Elementary and intermediate. 6 points each Session. Fee \$36 each Session

Section I—10-11 a. m. and I-2 p. m., Monday, Tuesday, Wednesday, Thursday and Friday. Mr. HARNED

Section 2—11 a. m.-12 m. and 2-3 p. m., Monday, Tuesday, Wednesday, Thursday and Friday. Miss Dearborn

Section 3—10-11 a. m. and 1-2 p. m., Monday, Tuesday, Wednesday, Thursday and Friday. Mr. WRIGHT

This course is planned for beginners and should be taken in conjunction with Typewriting e1-2. All secretarial students working for a certificate are expected to complete this course and Typewriting e1-2.

Typewriting e1-2—Elementary and intermediate. 4 points each Session. Fee \$24 each Session

Section I—II a. m.-I2 m. and 2-3 p. m., Monday, Tuesday, Wednesday, Thursday and Friday. Mr. HARNED

Section 2—10-11 a. m. and 1-2 p. m., Monday, Tuesday, Wednesday, Thursday and Friday. Miss Dearborn

Section 3—9-10 a.m. and 12 m.-1 p.m., Monday, Tuesday, Wednesday, Thursday and Friday. Mr. WRIGHT

This course is planned for beginners and should be taken in conjunction with the corresponding sections of Stenography et-2.

Stenography e4—Elementary. 6 points Spring Session. Mr. BRYANT 10-11 a. m. and 1-2 p. m., Monday, Tuesday, Wednesday, Thursday and Friday. Fee \$36

This course is planned for beginners and should be taken in conjunction with Typewriting e4.

Typewriting e4—Elementary. 4 points Spring Session. Mr. BRYANT 9-10 a. m. and 12 m.-1 p. m., Monday, Tuesday, Wednesday, Thursday and Friday. Fee \$24

This course is planned for beginners and should be taken in conjunction with Stenography e4

Stenography e5—Intermediate. 6 points Winter Session. Mr. BRYANT 10-II a. m. and I-2 p. m., Monday, Tuesday, Wednesday, Thursday and Friday. Fee \$36

This course is planned for those who have completed Stenography e4 or e1, or the equivalent, and should be taken in conjunction with Typewriting e5. All secretarial students working for a certificate are expected to complete this course or Stenography e2.

Typewriting e5—Intermediate. (Speed practice and transcription.) 4 points Winter Session. Mr. BRYANT

9-10 a. m. and 12 m.-1 p. m., Monday, Tuesday, Wednesday, Thursday and Friday. Fee \$24

This course is planned for those who have completed Typewriting e4 or e1, or the equivalent, and should be taken in conjunction with Stenography e5.

# Afternoon and Evening Courses

The courses in the afternoon and evening are planned for those who can give but a portion of their time each day to the study of shorthand and typewriting. In February, each elementary course will be followed by a continuation class. Each elementary course will also be repeated in February for beginners and will be followed in the autumn by a continuation class. Students registering for stenography are urged to take the course in typewriting which corresponds to it, as designated below. After a study of both shorthand and typewriting for forty-five or sixty weeks, students are able to write shorthand at the rate of one hundred words a minute and to transcribe their shorthand notes on the typewriter at the rate of twenty words a minute, thus enabling them to perform the usual stenographic duties in a business office.

Stenography e11-12—Elementary. 3 points each Session. Mr. MILLER 5:15-6:15 p. m., Monday, Tuesday, Wednesday, Thursday and Friday. Fee \$18 each Session

This course is planned for beginners and should be taken in conjunction with Typewriting e11-12.

Typewriting e11-12—Elementary. 2 points each Session. Mr. MILLER 4:15-5:15 p. m., Monday, Tuesday, Wednesday, Thursday and Friday. Fee \$12 each Session

This course is planned for beginners.

Stenography e14—Elementary. 3 points Spring Session. Mr. Lynaught 4:15-5:15 p.m., Monday, Tuesday, Wednesday, Thursday and Friday. Fee \$18

This course is planned for beginners and should be taken in conjunction with Typewriting e14.

Typewriting e14—Elementary. 2 points Spring Session. Mr. LYNAUGH 5:15-6:15 p. m., Monday, Tuesday, Wednesday, Thursday and Friday. Fee \$12

This course is planned for beginners.

Stenography e17-18—Intermediate. 6 points each Session. Mr. CRAVER 4:15-6:15 p. m., Monday, Tuesday, Wednesday, Thursday and Friday. Fee \$36 each Session

This course is planned for those who have completed Stenography e11-12 or e14 or the equivalent. A large portion of the class period is devoted to dictation or speed practice. However, a part of each class period is devoted to the transcription of shorthand notes either on the typewriter or in pencil. From time to time there is a little speed practice on the typewriter.

Stenography e19-20—Advanced. 3 points each Session. Miss Dearborn 5:15-6:15 p. m., Monday, Tuesday, Wednesday, Thursday and Friday. Fee \$18 each Session

This course is planned for those who have completed Stenography e17–18 or the equivalent. Dictation of general, business, and legal matter will be given at a rate of speed varying from one hundred to two hundred words a minute.

Stenography e21-22—Elementary. 2 points each Session. Mr. Bryant 7:30-8:30 p. m., Monday, Wednesday and Friday. Fee \$12 each Session

This course is planned for beginners and should be taken in conjunction with Typewriting e21-22.

Typewriting e21-22—Elementary. 2 points each Session. Mr. Bryant 8:30-9:30 p. m., Monday, Wednesday and Friday. Fee \$12 each Session This course is planned for beginners.

Stenography e24—Elementary. 2 points Spring Session. Mr. BEIDLEMAN 8:30-9:30 p. m., Monday, Wednesday and Friday. Fee \$12

This course is planned for beginners and should be taken in conjunction with Typewriting

Typewriting e24—Elementary. 2 points Spring Session. Mr. BEIDLEMAN 7:30-8:30 p. m., Monday, Wednesday and Friday. Fee \$12

This course is planned for beginners.

Stenography e25-26—Intermediate. 4 points each Session. Mr. EASTBURN 7:30-9:30 p. m., Monday, Wednesday and Friday. Fee \$24 each Session

This course is planned for those who have completed Stenography e2I-22 or e24 or the equivalent. A large portion of the class period is devoted to dictation or speed practice. However, a part of each class period is devoted to the transcription of shorthand notes either on the typewriter or in pencil. From time to time there is a little speed practice on the typewriter.

Stenography e27-28—Court reporting. 3 points each Session. Mr. KIMBALL

7:30-9:30 p. m., Tuesday and Thursday. Fee \$18 each Session

The object of this course is to provide instruction in court reporting for students who desire to increase their shorthand speed and to obtain a knowledge of legal forms and court procedure. Dictation from one hundred to two hundred words a minute will be given on general and legal matter.

#### TYPOGRAPHY

Typography e1—Proof-reading and the preparation of manuscript. 2 points Winter Session. Miss Rose

4:30-6:10 p. m., Tuesday. Fee \$12

A brief outline of the history of typography will be followed by a practical explanation of present-day printing methods and a description of the different systems of hand and machine type-setting employed in modern establishments. Detailed instruction will be given in the preparation of manuscript for the compositor and in proof-reading. The work in proof-reading will include drill in the actual correction and revision of galley, page, and final proofs, with special attention to spelling, correct division of words, and uniformity in punctuation, capitalization, abbreviations, and minor matters of style. The work is planned to be of special value to authors, editors, secretarial students, and others who may be called upon to prepare manuscript for the printer.

#### **ZOOLOGY**

Zoology e1a-2a—Elementary biology and zoology. Lectures and laboratory. Credit I, IV. 2 points each Session. Professor McGregor and Dr. Packard

1:30-2:30 p. m., Saturday. (Laboratory, 2:30-4:20 p. m., Saturday.) Fee \$12 each Session

The earlier part of this course is designed to give the student an elementary knowledge of the basic principles of biology and the general physiology of organisms. Protoplasm, the cell, unicellular organisms, plant and animal in relation to each other and to the inorganic world are the chief topics discussed in the Winter Session. The Spring Session is mainly devoted to the study of the structures and adaptations of some of the more important groups of animals, with dissection of types in the laboratory. Among the types studied may be mentioned amoeba, paramecium, hydra, earthworm, lobster, grasshopper, clam, and dogfish. Practically equivalent to Zoology I in Columbia College.

A text-book will be used and collateral reading assigned.

Prerequisite: Natural science A, or elementary chemistry or physics.

## PRACTICAL ARTS

# Officers of Administration for Extension Teaching in the School of Practical Arts

James Earl Russell, LL.D. . . . Dean of Teachers College Maurice A. Bigelow, Ph.D. . . . Director of School of Practical Arts Clifford B. Upton, A.M. . . . . Secretary of Teachers College Bessie Carroll . Secretary to the Director of School of Practical Arts Jessica Bigham Reed . Assistant to the Secretary of Teachers College

The School of Practical Arts of Teachers College, in cooperation with the University Department of Extension Teaching, offers certain courses of instruction to qualified students who have not matriculated in any part of Columbia University as candidates for degrees. Such non-matriculated students will be admitted only to Practical Arts classes which are designated e (extension) or esp (extension special). The permission of the departments concerned must be obtained before registering for extension courses marked with \* (e. g., \*Cookery e2). Permission of departments is not required for admission to extension special courses.

Practical Arts extension courses which are announced as having Credit IV may be credited towards the Bachelor of Science degree if satisfactorily completed by non-matriculated students who afterward matriculate in the School of Practical Arts. The possible credit in points is stated in the description of courses.

Practical Arts extension special courses (marked esp; e. g., Cookery esp 42) are intended for popular instruction and cannot be credited towards degrees or entrance requirements.

The extension courses in practical arts are not open to women under twenty-one years of age who do not reside with their parents or relatives.

An extension student may not register for more than 8 points per Session in any one department of the School of Practical Arts.

Matriculated students of Teachers College or of other parts of the University who wish to register for part-time programs should choose courses from the Announcement of the School of Practical Arts or from the special bulletin of Afternoon, Evening and Saturday Classes in Teachers College. The extension courses announced in this bulletin are not credited if taken by matriculated students unless they obtain in advance written approval from the Committee on Instruction.

Registration for Practical Arts Extension Courses. Students register for Practical Arts extension courses at the office of the Registrar, University Hall, Columbia University. Information concerning such courses may be obtained at Table E in the office of the Secretary of Teachers College daily 9 a. m.-12 m., and 2-4 p. m., except Saturday afternoon; and also 7-8 p. m., on the evenings when courses begin.

Changes of programs, such as dropping or adding courses, can be made only at the Registrar's office in University Hall, where the complete records are kept on file. Permission to add courses marked with \* must be obtained from the instructor before changing programs at the Registrar's office.

Number of students required in classes is indicated in descriptions of certain courses. Such classes may be discontinued if the required number of students

are not registered before the time for the second lesson.

Limited classes. Many classes for practical work are limited as to number of students. Such classes are indicated by the letter L affixed to the course number (e. g., \*Cookery e2L). Extension students must reserve places by personal application to the clerk in charge of extension classes, Desk E, Secretary's Office, Teachers College. Reservations must be made at the time of registration. Places will not be held for students who do not report to the instructor at the first lesson. In case of withdrawal from courses which have a required minimum registration, no fees will be returned.

Students who register in the Winter Session for courses which extend throughout the year must at the beginning of the Spring Session call at the Registrar's office at University Hall, renew their registrations, and pay the tuition fees of the Spring Session.

Admission of extension students to Practical Arts classes with Credit IV will not be permitted after Saturday, October 6, unless for reasons of weight special permission for registration without credit is granted by the Director of the School of Practical Arts.

The University fee of \$5 per year is charged to all extension students who register for Practical Arts courses marked e, but not to those who take only the popular lecture courses marked esp.

Unless special dates are mentioned in the following pages, all courses in Practical Arts are on the regular schedule of the School of Practical Arts, beginning Wednesday, September 26, 1917, for the Winter Session, and Wednesday, February 6, 1918, for the Spring Session.

Special registration hours for extension students in Practical Arts for the Winter Session are Tuesday and Wednesday, September 25 and 26, 4 to 6 p. m., Saturday, September 29, 9 to 12; and for the Spring Session, Tuesday and Wednesday, February 5 and 6, 4 to 6 p. m., and Saturday, February 9, 9 to 12.

Courses for 1917-1918. In the following pages are statements regarding the Practical Arts courses that are open to extension students during the academic year September 1917-1918. In Practical Science there are courses in biology and chemistry. In Fine Arts there are courses in art appreciation, art structure, drawing, painting, costume design, household design and decoration, art industries, art photography. In Household Arts there are courses of cookery, nutrition, textiles and clothing, and household administration and economics. In Industrial Arts there are courses in mechanical drawing, metalworking, woodworking and teaching industrial arts. In Music there are both lecture and practical courses for teachers and others. In Nursing and Health there are courses for nurses and home-makers. In Physical Education there are a few elementary courses for teachers and a number of exercise courses at hours convenient for those who are not college students.

The attention of students is called to the fact that the numbers of courses and many details in the statement of the classes and hours are different in this section of the Announcement from those found on the preceding pages.

## PRACTICAL SCIENCE

Laboratory ticket: Students in all laboratory courses in the School of Practical Arts are required to purchase from the Bursar of Teachers College a laboratory breakage ticket, good for all science departments, price \$2. Unused coupons are redeemable at the end of any Session.

# Biology

\* Biology e1—Elementary human anatomy and physiology. Credit IV. 2 points Winter Session. Miss Stackpole and assistant

3:10-5 p. m., Tuesday and Thursday, Room 421 T. C. Fee \$12

\*Biology e4x—Biology for sex-education. Credit IV. 1 point Spring Session, when taken supplementary to any course in hygiene or biology. Open only to women. Miss Stackpole

5:10-6 p. m., Monday, Room 421 T. C. Fee \$6

A series of fifteen illustrated lectures and laboratory demonstrations dealing with the anatomical, physiological, embryological and bacteriological facts of biology which are necessary for understanding sex-education.

\*Biology e51-52—Biological nature-study. Lectures, laboratory work, field work and reading. Credit IV. 2 points each Session. Professor BROAD-HURST and Miss STACKPOLE

3:10-5 p. m., Monday and Friday, Room 423 T. C. Fee \$12 each Session

This course is a general introduction to the nature-study of common animals and plants. The Winter Session is chiefly plant nature-study, while the Spring Session is largely devoted to animals. The names, life-histories, habits, relations to man, and other facts of popular interest concerning living things are emphasized. Trees and forestry, cultivated plants, wild flowers, birds, insects, domesticated animals, and other materials important in nature-study are selected for study. Both Sessions are essential for teachers of nature-study and biology, but general students may register for either Session.

\*Biology e57L—Elementary microbiology (including bacteriology). Lectures and laboratory work. Credit IV. 2 points. Professor Broadhurst and assistant

This half-year course requires (1) one lecture hour, (2) one demonstration and recitation hour, and (3) one two-hour laboratory period

8:30-12:20 a. m., Saturday, Winter Session, Room 423 T. C. Fee \$12. For the convenience of part-time students, the lectures, laboratory work and demonstrations are all given on the same day

Limited section. Requires a registration of fifteen students

This course deals with bacteria, molds, yeasts, and other micro-organisms, selecting for most attention the forms which affect everyday life. The bacteriological problems of personal and public hygiene and sanitation are included. Many of the studies directly involve important problems of home economics.

Prerequisite: Elementary biological laboratory study.

# Chemistry

(For general chemistry, see pp. 35-36.)

\* P. A. Chemistry e3—Brief course for beginners in household arts. Credit IV. 4 points. Fee \$24. Miss Francis

Section I—9-11:50 a. m., Tuesday and Thursday, Winter Session. Repeated as Section II—Spring Session

Section III—9-11:50 a. m., Wednesday and Saturday, Winter Session

An abbreviated course for students beginning the study of cookery, nutrition, or household administration. If students who take this course later wish to enter Chemistry 31 or 41, they must complete Chemistry 5.

\* P. A. Chemistry e25—Food industries. Lectures, readings and demonstrations, varied with excursions to manufacturing establishments and reports on the processes inspected. Credit IV. 3 points. Fee \$18. Professor Vulté and Miss Vanderbilt

Section I—10-11:50 a. m., Tuesday and Thursday, Winter Session. Repeated as Section II—Spring Session

Section III—10-11:50 a. m., Monday and Friday, Winter Session. Repeated as Section IV—Spring Session

Room 400 T. C.

The lectures describe the preparation of the various staple foods, from the raw state to the finished product in marketable form and include a discussion of the composition and cost of the available materials. Among the various subjects considered are the cereals, flours, meals, starch, bread, sugars, meats, edible oils, dairy products, tea, coffee, chocolate, alcoholic beverages, spices and condiments. The processes of drying, salting, smoking, canning and preserving are described. Adulteration and substitution are also considered.

Prerequisite or parallel: A course in general chemistry.

\* P. A. Chemistry e31L—Household and organic chemistry. Lectures and laboratory work. Credit IV. 4 points. Fee \$24. Professor Vulté, Miss Vanderbilt and Mrs. McGowan

Section I-9-11:50 a.m., Winter Session. Repeated as

Section II—Spring Session

Section III-9-11:50 a. m., Tuesday and Thursday, Winter Session

Section V—9-11:50 a. m., Wednesday and 2:10-5 p. m., Friday, Winter Session. Repeated as

Section VI-Spring Session

Limited sections

Room 405 H. A.

This course includes the study of water—composition, analysis and purification; liquid and gaseous fuels—composition, manufacture, properties and testing; hydrocarbons—classification and properties; alcohols, aldehydes, acids; examination of fruit products; carbohydrates; testing of flours, meal, cereals, etc.; fats—properties, testing for purity, soap making; proteins

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 2 p. m. on September 25 or February 5. The instructor must be consulted before registration, and written permission obtained.

-classification, properties, examination of eggs, meat and meat extracts, gelatine, milk and cheese, baking powders; tea, coffee, cocoa.

Prerequisite: A course in general chemistry equivalent to Chemistry eA1-A2. Chemistry 25 is recommended.

\* P. A. Chemistry e31A. Credit IV. 4 points Spring Session. A modification of Chemistry 31 for students in household administration and others desiring a general survey of household chemistry and physics. Miss Francis

2:10-5 p. m., Monday and Wednesday, Room 405 H. A. Fee \$24

Prerequisite: Chemistry e3A or eA. This course does not admit to more advanced courses in chemistry unless the student has completed the equivalent of Chemistry eAI-A2.

## FINE ARTS

# Art Appreciation and History

\* Fine arts e69-70—Art appreciation. History of art. Lectures and required reading. Credit IV. 2 points each Session. Professor Dow

4:10-5:30 p. m., Tuesday. Horace Mann Auditorium. Fee \$12 each Session

Appreciative study of painting, sculpture, architecture and design, in historical development. Lantern illustrations.

First part of course: nature of space arts, principles common to them all; art structure, composition of line and mass, color-theory, art criticism.

In the historical study, general chronological order is followed, but facts as to dates and periods are to be derived from the text-book, Reinach's Apollo. Reading is tested by written exercises. Illustrated reports of work in museums and libraries will be required.

## Art Structure

\* Fine arts e1—Art structure A. For teachers, designers, illustrators, craftsmen and painters. Lectures and studio work. Credit IV. 3 points. Fee \$18. Professors Dow and Cornell and Miss Tannahill

An evening class will be organized for Monday, Wednesday, and Friday evenings, 8-10, Winter Session, if twenty-five students apply

Room 430 Macy

The courses in art structure stand for (a) freedom-to use line, mass, color; (b) powerto appreciate fine qualities of proportion, arrangement and color, and to obtain these qualities in creative art work.

Outline: 1. Principles of art-how lines, masses, colors, may be put together to produce fine quality-spacing rhythm, grouping. 2. Original design-choosing and combining lines, masses, colors. Exercises with brush and ink, charcoal, colored crayons, watercolor. Position of body, breathing, control of hand, freedom of movement, power in execution. Study of masterpieces. 3. Use. Applications in painting, illustrating, designing, modeling and handicraft. Reading, Dow's Composition and Theory and Practice of Teaching Art.

- \* Fine arts e2-Art structure B. Continuation of Fine arts 1. Lectures and studio work. Credit IV. 3 points Spring Session. Fee \$18. Professors Dow and CORNELL and Miss TANNAHILL
- \* A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 2 p. m. on September 25 or February 5. The instructor must be consulted before registration, and written permission obtained.

An evening class will be organized for Monday, Wednesday, and Friday evenings, 8-10, Spring Session, if twenty-five students apply

Room 430 Macy

Principles of composition; line and dark-and-light harmonies in pattern, lettering and landscape; how to study color; harmony of colors in design, pictures, costumes, printing, the home. Study of historic examples, primitive art, Japanese art. Special study, under guidance of museum art collections.

Applications in decoration, illustration, painting.

Reading as in Fine Arts 1, also Day's Pattern Design, Johnston's Writing, Illuminating and Lettering.

Prerequisite: Fine Arts 1. Design or drawing in other schools cannot be accepted as equivalent of Fine Arts 1 or 2.

\* Fine arts e3—Freehand drawing. Credit IV. 2 points. Fee \$12. Mr. Martin

Section I—2:10-4 p. m., Tuesday and Thursday, Winter Session

Section III-IV—Wednesday, throughout the year. (See Fine arts e3a and e3b below)

Fine arts e3a. First half of above course

Section III. I point. Fee \$6

4:10-6 p. m., Wednesday, Winter Session

Fine arts e3b. Second half of above course

Section IV. I point. Fee \$6

4:10-6 p. m., Wednesday, Spring Session

Outline, relief, light and shade. Perspective. Drawing from still life, flowers and casts; landscape sketching. Charcoal, brush, pencil. Copying of masters' drawings.

Fine Arts e49-50—Art structure Ca. Lectures and studio work. 1 ½ points each Session. Professor Dow and Miss Tannahill

9-11:50 a.m., Saturday. Room 430 Macy

Three hours outside work per week

An abridged course in theory and principles of art. (See Fine Arts e1, 2, 51-52.) For teachers, designers, illustrators, craftsmen, and painters.

Exercises in composition. Brush drawing and painting; charcoal studies; color in theory and practice. Assigned reading and museum work.

\*Fine arts e75—Lettering. Credit IV. 3 points Winter Session. Miss Tannahill

2:10-5 p. m., Tuesday and Thursday. Fee \$18

Lectures and studio work. Art in lettering. Ancient and modern lettering. Reed-pen, steel pen, brush, and stick lettering. Designing of posters, cards, title-pages, inscriptions and illuminations.

Reading, Day's Pattern Design; Johnston's Writing, Illuminating, and Lettering; Dow's Composition.

Prerequisite: Fine Arts 1. Design or drawing in other schools cannot be accepted as equivalent of Fine Arts 1 or 2.

\*Fine arts 25-26—Clay Modeling. 2 points each Session. Fee \$12 each Session. Mr. UPJOHN

Section I-3:10-5 p.m., Wednesday and Friday

Section II—2:10-4 p. m., Tuesday and Thursday Section III—10-11:50 a. m., Tuesday and Thursday.

Pottery; making of tiles and shapes; building, pressing, casting. Glazing and firing.
Clay modeling: Modeled and incised tiles and panels. Mouldings, medallions in low and high relief. Modeled heads from casts. Design, casting, colored relief, cement work.

Reading, Cox's Pottery, Binn's Potter's Craft, Jewitt's History of Pottery.

Prerequisites: Fine Arts 1, 2.

\*Fine arts e53A-54A—Drawing and painting. Credit IV. 2 points each. Session. Fee \$12 each Session. Mr. Martin

Section I-9-10:50 a. m., Tuesday and Thursday

Section II-2:10-4 p. m., Wednesday and Friday

Expression by line, modeling in line, shading, gradation, values, perspective, modeling in tone, technique of charcoal. Painting in oil and water color, figures, animals, landscapes Copying in museums.

Reading, Knowlton's Hints on Sketching from Nature; Ross' Drawing and Painting.

Prerequisite: Fine arts 3 or equivalent,

\*Fine arts e53a—Drawing and painting. Credit IV. 1 point. Mr. MARTIN

9-10:50 a. m., Saturday, Room 435 Macy. Fee \$6

Freehand drawing in charcoal and pencil from objects, cast, still life and costumed figure. Shading, gradation, values, texture, and tone-modeling. Painting in oil and water color

\*Fine arts e83-84—Painting. 4 points each Session. Professor Bement (e83) and Mr. Martin (e84)

9-11:50 a.m., Monday, Wednesday and Friday. Room 426 Macy

Drawing and painting from life, costumed model. Compositions of figures and landscapes for mural painting and illustration. Portrait and landscape painting. Copying in museums. Studio and outside work.

Reading, Vanderpoel's The Human Figure.

Prerequisites: Fine arts 51-52, 53-54, or equivalents.

\*Fine arts e83a-84a—Painting. 1½ points each Session. Professor Bement 9-11:50 a. m., Saturday, Room 426 Macy

Fine arts e84a is not given in 1917-1918.

Still life painting, landscape painting, work from costumed model.

Advanced course following Fine arts e49-50 and e53a-54a.

\*Fine arts e93—Life class for women. Credit IV. 3 points. Professor BEMENT

9-11:50 a. m., Monday, Wednesday and Friday, Room 426 Macy. Special fee \$24. Not charged at \$6 per point

Open only to those who have satisfactorily completed Fine arts 53-54. Drawing and painting from living model. Two criticisms per week.

# Household Design and Decoration

\*Fine arts e11—Household design, elementary. Studio work. Credit IV. 3 points. Fee \$18. Professor Warner, Mr. Meeker and Mrs. Brown Section I—9-11:50 a. m., Tuesday and Thursday, Winter Session

Section II—2:10-5 p. m., Tuesday and Thursday, Spring Session Section III—2:10-5 p. m., Tuesday and Thursday, Winter Session Room 505 H. A.

\*Fine arts e14—Principles of home decoration. Lectures and studio work. Credit IV. 3 points Winter Session. Mr. Meeker

9-11:50 a. m., Monday and Friday, Room 505 H. A. Fee \$18

Principles of spacing, dark-and-light and color applied to problems of the home; economics of furnishing and decorating. Visits to shops.

Fine arts e57-58—Furniture design. 1½ points each Session. Professor WARNER

9-11:50 a. m., Saturday, Room 505 H. A.

The designing of furniture, both simple and elaborate, including a series of projects suitable for the secondary school. The aim of the course is to make practical, structural, and artistic designs for furniture.

Prerequisites: Fine arts 1-2 and Drawing 3-4, or their equivalent.

\*Fine arts e59-60—Metalwork design. Credit IV. 1½ points each Session. Professor Warner

9-11:50 a. m., Friday, Room 505 H. A. Fee \$9 each Session

The principles of line and mass are applied in designs for metalwork. Electric fixtures, lamps, andirons, fire irons, fireplace hoods, candlesticks, hinges, pulls, escutcheons, etc.

Prerequisites: Fine arts I and 2 and Drawing 3-4 or their equivalents.

\* Fine arts e80—Home furnishings. Illustrated lectures, readings and reports. Credit IV. 4 points Spring Session. Professor WARNER 9–10:50 a. m., Tuesday and Thursday, Room 101 H. A. Fee \$24

A practical course in the decoration and furnishing of the entire home. The history of period furniture, with lantern slides. The problem of artistic and economic furnishing, the costs of materials and labor. Estimates for specific problems, exhibits of many materials, and excursions to shops will be included.

# Costume Design

Fine arts e21—Costume design. Credit IV. 3 points. Miss WILMOT. Fee \$18

Section I—9-11:50 a. m., Tuesday and Thursday, Winter Session. Repeated as Section II, Spring Session.

For Saturday section (V) see Fine arts e21a-e21b below

# Fine arts e21a-e21b. Same as e21. Miss NORTHRUP

9-11:50 a. m., Saturday, throughout the year. Room 507 H. A.

Design in costume; rhythm of line; harmonies of tone. Sketching gowns and hats; original designs for gowns and hats for various types. Pencil, pen and ink, charcoal, blackboard drawing. For teachers in household arts education and in costume design, and for professional designers.

Prerequisites: Fine arts I or II and Clothing 33.

## Art Industries

\*Fine arts e31-32—Design in the art industries. Lectures and studio work. Credit IV. 3 points each Session. Professor Dow and Mr. Thatcher

9-11:50 a. m., Monday and Wednesday, Room 236 Macy. Fee \$18 each Session

Instruction in principles and practice of design. Training for professional designers and craftsmen. Drawing with brush and ink. Painting in fresco and water color. Line design and space filling. Tone and masses. Color theory, color scheming. Original design with special problems in architectural detail, furniture, house decoration, metal, textiles and stained glass. Reading, Dow's Composition, Day's Ornamental and Its Application and Pattern Design.

\* Metalworking e1—Hammered meta1. Credit IV. 2 points Winter Session. Mr. Thatcher

9-10:50 a. m., Tuesday and Thursday, Rooms 26 and 243 Macy. Fee \$12

The course offers instruction in hammered and raised work. The processes include forming of bowls, trays, boxes, candlesticks, furniture fittings and other shapes, and their enrichment by repoussé; coloring of metals by patinas. Design is considered in relation to the projects. Students should elect Fine arts 1 parallel, and if possible Fine arts 31-32.

\* Metalworking e2—Silversmithing. Credit IV. 2 points Spring Session.
Mr. Thatcher

9-10:50 a. m., Tuesday and Thursday. Fee \$12

The course continues Metalworking I, taking up problems in hammered silver, hard and soft soldering, etching, repoussé, finishing and coloring and enameling.

Prerequisite: Metalworking I. Students should elect Fine arts 2 parallel, and if possible Fine arts 31-32.

\*Metal working e5-6—Jewelry. Shopwork. Credit IV. 2 points each Session. Fee \$12 each Session. Mr. Thatcher

Section I—2:10-4 p. m., Monday and Wednesday Section II—4:10-6 p. m., Monday and Wednesday

Room 243 Macy

Instruction is offered in the making of buckles, fobs, chains, necklaces, pendants, rings, setting of stones, casting of silver; polishing and finishing of metals; coloring by chemical and electrolytic methods. Design is considered in relation to the problem.

Prerequisites for Sections I and II: Metalworking I, 2; and a design course, which may be taken parallel.

# Art Photography

\* Fine arts e7-8—Art photography I. Lectures and laboratory work. Credit IV. 2 points each Session. Mr. White

4:10-6 p. m., Wednesday, and 9-10:50 a. m., Saturday, Room 325 Macy. Extra hours desirable but optional. Special fee \$18 each Session. Not charged at \$6 per point

Begins October 3. Requires ten students

Application of art to photography, and instruction in the use of the camera. Field and laboratory work, developing, printing and mounting.

Practice in the use of the camera in the field and in the studio on Saturday mornings.

Recommended preparatory: Fine arts 1, 2.

\* Fine arts e37-38—Art photography II. Lectures and laboratory work. Credit IV. 2 points each Session. Mr. WHITE

4:10-6 p. m., Thursday, and 9-10:50 a. m., Saturday, Room 325 Macy. Extra hours desirable but optional. Special fee \$18 each Session. Not charged at \$6 per point. Begins October 4. Requires ten students

Making negatives, positives and enlarged negatives, the manipulation of negatives and printing papers. Coating of papers. Photography in landscape, architecture, illustration and portraiture. Mounting, framing and lantern-slide making.

Practice will be offered in the use of the camera in the field and in the studio on Saturday mornings and at other times in the studio by appointment.

Prerequisite: Art photography I or equivalent.

# Mechanical Drawing

Certain specially applied courses in mechanical drawing offered in the School of Practical Arts are open to Extension students who have completed the courses described in the annual Announcement. See the *Announcement of the School of Practical Arts* and consult the Director of that School.

Other and more advanced courses in fine arts, described in the *Announcement* of the School of Practical Arts, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor Dow.

#### HOUSEHOLD ARTS

See Cookery (p. 104), Nutrition and Food Economics (p. 107), Textiles and Clothing (p. 108), Household Arts—Fine Arts (p. 101), Household Administration (p. 112).

## Cookery

The classes in cookery meet in Rooms 201–214 Household Arts Building, Teachers College.

Costume for foods and cookery laboratories: Students are requested to wear white cotton clothing; plain skirt; tailored waist; plain white collar; no color in ties or bows of neckwear; long plain white apron with bib (for laboratory only); little if any jewelry.

Limited sections: For all 'limited' courses (indicated by L following the number, e. g., Cookery e2L) students must reserve places before completing registration. See p. 96.

Any limited section with less than ten students may be discontinued after the first lesson.

Cookery e1—Technology of cookery. Lectures, demonstrations and laboratory work. Credit IV. 2 points. Fee \$12. Professor Van Arsdale, Miss Stone, and Miss Monroe

Section I—1:10-2 p. m., Monday, Wednesday and Friday, Winter Session. Repeated as

Section II—Spring Session

Section III—1:10-2 p. m., Tuesday, Wednesday and Thursday, Winter Session. Repeated as

Section IV—Spring Session

Section V-9-11:50 a. m., Saturday, Winter Session

The purpose of this course is to develop skill in the technique of cookery by means of a systematic introduction to the principles and processes and food materials involved.

This course is prerequisite or parallel to all courses in cookery.

Students are advised to take general chemistry and physics parallel.

\*Cookery e2L—Elements of cookery. Lectures and laboratory work.

Credit IV. 3 points. Special fee \$24. Not charged at \$6 per point. Mrs. Gunn
Section I—2:10-5 p. m., Monday and Wednesday, Winter Session. Repeated as
Section II—Spring Session

Limited sections

This course is for students of household administration, nursing and health, teachers of home-making, and others not majoring in foods and cookery. It includes a general survey of the elementary principles of cookery, with an introduction to planning and serving meals in the home. Elementary chemistry, physics and biology are desirable preliminary or parallel courses. This course does not satisfy the prerequisites for other courses of cookery, unless so stated in the announcement, nor may it be credited in addition to Cookery 3 or 41.

Cookery I is a desirable parallel.

\*Cookery e3L—Principles of cookery. Lectures and laboratory work. Credit IV. 3 points. Special fee \$24. Not charged at \$6 per point. Miss Peacock, Miss Frame, and Miss Stone

Section IX-X—Saturday, throughout the year. (See Cookery e3a and e3b

below)

Section XI—7–9:50 p. m., Monday and Wednesday, Winter Session. Begins October 1

Limited sections. Each section requires ten students

The purpose of this course is to give a working knowledge of the general principles of cookery. Prerequisite or parallel: General chemistry and Cookery  $\mathfrak x$ .

Cookery e3a-3bL—Section IX-X of above course. Credit IV. 3 points for the year. Special fee \$12 each Session

9-11:50 a. m., Saturday, Winter and Spring Sessions. Begins September 29

\* Cookery e5—Cookery for social workers. Lectures and field work. Credit IV. 2 points. Fee \$12. Miss GIBBS

Section I-2:10-3 p. m., Friday (lecture), Winter Session. Repeated as

Section II—Spring Session

Hours for field work to be arranged. Each section requires ten students

The purpose of this course is to provide instruction for those interested in social betterment work, in the conditions governing the food supply in the congested districts. Field work will be

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 2 p. m. on September 25 or February 5. The instructor must be consulted before registration, and written permission obtained.

provided for mature students who are qualified to be assigned the oversight of a family and to give instruction in cookery in the home.

Prerequisites: Elementary chemistry and principles of cookery.

Recommended parallels: Nutrition I, Physics I and Chemistry 25, Biology 4, and Administration I.

\* Cookery e41L—Home cookery and table service. Lectures and laboratory work. Credit IV. 4 points. Special fee \$32. Not charged at \$6 per point. Miss Peacock and Mrs. Gunn

Section VII-VIII—Saturday, throughout the year (See Cookery e41a and e41b below)

Section X-7-9:50 p. m., Tuesday and Thursday, Spring Session Limited sections. Each section requires ten students

The purpose of this course is to give opportunity for practice in home cookery. It will include the study, planning and cooking of breakfasts, luncheons, dinners and suppers; and various methods of preparation and garnishing. It is intended for students who are planning to teach or to take charge of families where such work is required. It deals also with table service.

Prerequisite: Cookery 3.

Prerequisite or parallel: Cookery I, Chemistry 25 and Biology 4. Nutrition I is strongly recommended as a parallel. Administration 21 is also recommended.

Cookery e41a-41bL—Section VII-VIII of above course. 2 points each Session. Special fee \$16 each Session

9-11:50 a. m., Saturday, Winter and Spring Sessions. Begins September 29

\*Cookery e61—Lecture—Demonstrations in advanced Cookery. Credit IV. 3 points. Fee \$18. Miss Shapleigh

Section I—9-11:50 a. m., Monday and Friday, Winter Session. Repeated as Section II—Spring Session

This course is intended to acquaint the student with the more complicated processes of cookery, more elaborate utensils, and a greater variety of flavorings, seasonings and food materials.

Prerequisite or parallel: Cookery 1.

Prerequisite: Cookery 3 and 41, or equivalents.

\*Cookery e71L—Brief course in cookery for invalids. Lectures and laboratory work. Credit IV. 2 points. Fee \$12. Miss Peacock

7–9:50 p. m., Wednesday, Winter Session. Begins October 3

Limited class. Requires fifteen students

This course aims to teach the fundamental processes of food preparation as applied to the preparation and serving of dishes for the sick and convalescent.

\* Cookery e75L—Institutional cookery. Lectures and laboratory work. Credit IV. 4 points Spring Session. Special fee \$32. Not charged at \$6 per point. Miss Mann and assistant

Section III—7–9:50 p. m., Monday and Wednesday, Winter Session. Repeated as Section IV—Spring Session

Limited class. Requires ten students

This course is designed to give practice in handling materials in large quantities for the large family or for small and large institutions, as hospitals, sanitaria, college dormitories, restau-

rants, etc. The course will include some practice in planning and serving of luncheons of varying costs to small groups as an introduction to larger work. The problem of minimum cost luncheons will be considered with reference to the demands of the cafeteria, the factory, and the school.

Prerequisites: Cookery 1, 3 and 41.

\* Cookery e81L—Practice in demonstration cookery. 3 points. Miss Barrows and Miss Shapleigh

Section I-9-11:50 a. m., Tuesday and Thursday. Repeated as

Section II—Spring Session

Limited sections

This course aims to give practice for public lecture and demonstration for extension workers. Prerequisite for extension students: experience in teaching cookery.

Cookery e90—History of cookery. Fifteen lectures. Credit IV. I point supplementary to another course in household arts. Fee \$6. Miss Shapleigh

Section I-1:10-2 p. m., Friday, Winter Session. Repeated as

Section II-Spring Session

Cookery e42L—Elementary cookery. No credit. Special fee \$30. Not charged at \$6 per point

Section I—9-11:50 a.m., Tuesday and Thursday, Winter Session. Begins October 4. Repeated as

Section II-Spring Session. Begins February 12

Room 206 H. A.

Limited sections. Each section requires ten students

Cookery e44L—Laboratory course in advanced cookery. No credit. Special fee \$36. Not charged at \$6 per point. Mrs. Gunn

Section I—2:10-5 p. m., Tuesday and Thursday, Winter Session. Begins October 4. Repeated as

Section II—Spring Session. Begins February 12

Limited sections. Each section requires ten students

Prerequisite: Cookery e42 or equivalent.

Other and more advanced courses in Cookery, described in the Announcement of the School of Practical Arts, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor Van Arsdale.

# Nutrition and Food Economics

\*Nutrition e1—Elementary food economics. Lectures, recitations and laboratory work. Credit IV. 2 points. Fee \$12. Miss McCormick, Miss Latzer and Professor Sherman

Section I-9-11:50 a. m., Saturday, Winter Session. Repeated as

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 2 p. m. September 25 or February 5. The instructor must be consulted before registration, and written permission obtained.

Section II-Spring Session

Rooms 400 Teachers College, and 401 H. A.

This is an elementary course designed for students who have not taken the science courses which are a prerequisite to Nutrition  $\tau_1$ . It includes discussion of the functions and nutritive values of foods, the feeding of families and larger groups, with particular reference to nutritive requirements and the cost of food in relation to the family budget.

Prerequisites: An elementary knowledge of cookery equivalent to Cookery 3. Students who have not previously studied chemistry are strongly advised to take Chemistry 1 or 3A in the Winter Session as preparation for this course in the Spring Session.

**Elements of nutrition.** A series of ten lectures will be given, beginning October 3. A special circular may be obtained from the Secretary of Teachers College

## Textiles and Clothing

Limited sections: For all courses announced as 'limited sections' students must reserve places at the time of registration. See p. 96

\* Textiles e31a—Textiles. Lectures. Credit IV. 2 points. Fee \$12. Professor FALES

Section I—10-10:50 a. m., Tuesday and Thursday, Winter Session. Repeated as Section II—Spring Session

This course considers the primitive form of the textile industries in order to make clear their later development; the present methods of carding, spinning and weaving; the modern manufacture and finishing of cotton, wool, silk, linen and other important fibers, and their properties and values in relation to their manufacture. This course may be elected separately but is prerequisite to the other parts of the course.

\* Textiles e31b—Textile fabrics. Lectures and laboratory work. Credit IV.

I point supplementary to other textile work. Fee \$6. Professor Fales

Section I—10-11:50 a. m., Wednesday, Winter Session. Repeated as Section II—Spring Session

Room 302 H. A.

This course concerns itself with the identification and grading of textile materials, their names, kinds, prices and widths; considers variation of weave in regard to beauty and strength; the use and value of cotton, silk, wool and linen for clothing and household furnishing; includes estimates and a family budget for clothing or house decoration.

Prerequisite: Textiles 31a.

\* Textiles e31c—Textile chemistry. Laboratory work. Credit IV. I point supplementary to other textile or clothing work. Fee \$6. Mrs. McGowan

Section I-2:10-4 p. m., Thursday, Winter Session. Repeated as

Section II-Spring Session

Section III—10-11:50 a. m., Wednesday, Winter Session. Repeated as

Section IV-Spring Session

Room 509 H. A.

Limited sections

This course considers (a) the identification of fibers and substitute material by means of the microscope; (b) the chemical examination of fibers including tests to determine content of cloth

and adulteration, and proper use of materials in relation to cleansing and laundering; (c) lectures, and laboratory experiments in dyeing.

Prerequisites: Textiles 31a, Chemistry 3 or its equivalent.

Textile manufacturing-See under Industrial arts, p. 115

\*Clothing e33—History of costume. Lectures. Credit IV. 2 points. Fee \$12. Professor Fales

Section I—II-II:50 a. m., Tuesday and Thursday, Winter Session. Repeated as Section II—Spring Session

This course includes a survey of ancient Egyptian, Grecian, early and modern French costumes. It aims to give practical information for the use of students and teachers of dressmaking, costume design and fashion illustration.

\*Clothing e5L—Elementary clothing and handwork. For teachers. Laboratory work. Credit IV. 4 points. Fee \$24. Miss White and Miss Evans Section V—2:10-5 p. m., Tuesday and Thursday, Winter Session. Repeated as Section VI—Spring Session

Section IX-X—Saturday, throughout the year. (See e5a-5b below)
Limited sections. Each section requires ten students. Room 301 H. A.

This course includes practice in the following: the use of the sewing machine and its attachments; the making of fundamental stitches; the drafting and use of patterns; hand and machine sewing applied to simple garments; knitting, crocheting, darning, patching and simple embroidery.

Students provide required material.

This course, or its equivalent, is prerequisite to all dressmaking courses.

Parallel or prerequisite: Fine arts I or II.

- \* Clothing e5a-5bL—Section IX-X of above course. Credit IV. 4 points for the year. Fee \$12 each Session. 9-II:50 a.m., Saturday, Winter and Spring Sessions. Begins September 29
- \*Clothing e15L—Drafting and dress design. For teachers. Laboratory work. Credit IV. 3 points. Fee \$18. Miss Baldt

Section I—2:10-5 p. m., Monday and Friday, Winter Session. Repeated as Section II—Spring Session

Section IX-X—Saturday, throughout the year. (See e15a-15b below)

Limited sections. Each section requires ten students. Room 304 H. A.

This course gives practice in the making of patterns by drafting, modeling and designing. Foundation patterns of a shirtwaist, shirtwaist sleeve, skirt, fitted waist, fitted sleeve and kimono blouse are drafted to measure, in materials and fitted. From these other patterns are designed and modeled in paper, cambric and cheesecloth. Good design is emphasized.

Students provide required materials; approximate cost, \$5. This course is prerequisite to all other dressmaking courses.

\* Clothing e15a-15bL. Section IX-X of Clothing 15. Credit IV, 3 points for the year. Fee \$9 each Session

9-11:50 a. m., Saturday, Winter and Spring Sessions. Begins September 29

\* Clothing e35L—Dressmaking, elementary. For teachers. Laboratory work. Credit IV. 4 points. Fee \$24. Miss Baldt

Section I—9-11:50 a. m., Tuesday and Thursday, Winter Session. Repeated as Section II—Spring Session

Room 304 H. A.

Limited sections

This course includes eight evening tailoring demonstrations, and the cutting and making of a simple wash dress, a tailored silk shirt, a wool skirt, a lingerie blouse and a net guimpe. Commercial patterns as well as those made and fitted in Clothing 15 are used.

Students provide required material; approximate cost, \$25.

Prerequisites: Clothing 5, 15. Fine arts 1 or 11.

\* Clothing e35a-35b—Dressmaking, elementary. For teachers. Credit IV. 3 points for the year. Fee \$9 each Session. Miss Baldt

9-11:50 a. m., Saturday, Winter and Spring Sessions

Begins September 29 and February 9

Requires fifteen students

This course omits the tailoring work of Clothing 35.

\*Clothing e54L—Dress design, advanced. For teachers. Laboratory work. Credit IV. 3 points. Fee \$18. Miss Wilmot, Mrs. Nelson and Miss Evans

Section III—2:10-5 p. m., Monday and Friday, Winter Session. Repeated as Section IV, Spring Session

Section IX-X—Saturday, throughout the year. (See e45a and e45b below) Limited sections. Each section requires ten students. Room 305 H. A.

This course gives practical training in the application to costume of line, color harmony, dark and light, and texture. Historic costume is used as a source of inspiration for much of the work. Practice in using and adapting for different individuals and purposes designs from the current fashion magazines. All designing is done from patterns made in Clothing 15, and by modeling on the form to give practice in actual constructive design.

Students provide required materials; approximate cost, \$5.

Prerequisite: Clothing 15 and Fine arts 1.

\* Clothing e45a-45b—Section IX-X of Clothing 45. Credit IV. 3 points for the year. Fee \$9 each Session

9-11:50 a. m., Saturday, Winter and Spring Sessions. Begins September 29

\* Clothing e65—Embroidery. For teachers. Laboratory work. Credit IV. 3 points. Fee \$18. Miss White

2:10-5 p. m., Tuesday and Thursday, Spring Session Room 301 H. A.

This course includes practice in various kinds of embroidery—French embroidery for underwear, lingerie waists and household linen; dress embroideries in white and colors and various specialized embroideries. Students provide materials subject to the approval of the instructor

\* Clothing e27—Millinery, elementary. For teachers. Laboratory work. Credit IV. 3 points. Fee \$18. Mrs. Tobey

Section V—9-11:50 a. m., Monday and Friday, Winter Session. Repeated as Section VI—Spring Session

Room 302 H. A.

This course includes practice in the making and covering of frames and in the preparation of trimmings, such as wiring bows, shirrings, puffings, milliners' folds. Students provide materia subject to the approval of the instructor.

# Courses for Home Workers

Clothing e1L—Sewing, elementary. Laboratory work. Fifteen three-hour lessons. No credit. Special fee \$12. Miss Evans

Section I—9-11:50 a.m., Wednesday, Winter Session. Begins October 10. Repeated as

Section II-Spring Session. Begins February 13

Section III—2:10-5 p. m., Wednesday, Winter Session. Begins October 10 Room 301 H. A.

Limited sections. Each section requires fourteen students

This course includes practice in hand and machine sewing and in the cutting, fitting and making of undergarments. Students provide required materials.

Clothing e31L—Dressmaking. Laboratory work. Twenty-three two-hour lessons. No credit. Fee \$12. Mrs. Nelson and Miss Evans

Section I—10-11:50 a. m., Monday and Friday, Winter Session. Begins October 8. Repeated as

Section II-Spring Session. Begins February 11

Section III—10-11:50 a. m., Tuesday and Thursday, Winter Session. Begins October 9. Repeated as

Section IV—Spring Session. Begins February 12

Section V-2:10-4 p. m., Monday and Friday, Winter Session. Begins October 8. Repeated as

Section VI-Spring Session. Begins February 11

Room 509 H. A.

Limited sections. Each section requires fourteen students

This course includes the cutting, fitting and making from patterns of shirtwaists and unlined dresses in cotton, silk and wool. Students provide materials.

Clothing e41L—Dress design. Laboratory work. Thirty two-hour lessons. No credit. Fee \$15. Miss Evans

7:30-9:20 p. m., Tuesday and Thursday, Winter Session. Begins October 2 Room 305 H. A.

Limited class. Requires ten students

This course gives practical training in the designing and draping of costumes. Practice is given in using and adapting for different individuals and purposes designs from Historic Costume and the current fashion magazines.

Clothing e51L—Dressmaking. Laboratory work. Thirty two-hour lessons. No credit. Fee \$15

7:30-9:20 p. m., Monday and Friday, Winter Session. Begins October 1 Room 312 H. A.

Limited class. Requires ten students

This course gives practical training in the cutting, fitting, and finishing of dresses.

Clothing e71L—Dressmaking, advanced. Fifteen three-hour lessons. No credit. Fee \$12. Mrs. Nelson

Section I—2:10–5 p. m., Wednesday, Winter Session. Begins October 10. Repeated as

Section II—Spring Session. Begins February 13

Room 509 H. A.

Each section requires fourteen students

Students provide required materials.

Clothing e7L—Millinery, elementary. Laboratory work. Twenty-three two-hour lessons. No credit. Fee \$12. Mrs. SMITH

Section I—10-11:50 a. m., Monday and Friday, Winter Session. Begins October 8. Repeated as

Section II—Spring Session. Begins February 11

Section III—2:10-4 p. m., Monday and Friday, Winter Session. Begins October 8. Repeated as

Section IV-Spring Session. Begins February 11

Section V—10-11:50 a. m., Tuesday and Thursday, Winter Session. Begins October 9

Room 311 H. A.

Each section requires fourteen students

This course includes the making of frames in wire and willow; the covering of hats in silk, velvet, lace and straw; and demonstrations in trimming. Students provide materials.

Clothing e17L—Millinery, advanced. Laboratory work. Twenty-three two-hour lessons. No credit. Fee \$12. Mrs. SMITH

10-11:50 a. m., Tuesday and Thursday, Spring Session. Begins February 12 Room 311 H. A.

Requires fourteen students

Prerequisite: Clothing e7. Students provide required materials.

Lacemaking. A series of twelve lectures will be given, beginning October 15. A special circular may be obtained from the Secretary of Teachers College

Other and more advanced courses in clothing, described in the *Announcement* of the School of Practical Arts may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor Fales.

#### HOUSEHOLD ADMINISTRATION

\* Administration e1L—Housewifery. Discussions, observation and practical work. Credit IV. 2 points. Fee \$12. Miss Balderston and Miss Mann

Section III—2:10-5 p. m., Wednesday, Winter Session. Repeated as

Section IV—Spring Session

Section V—9-11:50 a. m., Friday, Winter Session. Repeated as

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 2 p. m. on September 25 or February 5. The instructor must be consulted before registration, and written permission obtained.

Section VI—Spring Session Room 53 H. A. Limited sections

This course treats of the kinds of work needed in various parts of the household and the systematic planning of the daily routine in care of rooms and their equipment. Special topics are: tools and materials, labor-saving appliances, repairing, floors and woodwork, floor coverings, rugs, carpets—care, cleaning and repair; furniture—cleaning and preservation; care and cleaning of metals, glass and marble.

\* Administration e2L—Household management. Credit IV. 2 points. Fee \$12. Miss Fisher

Section I-2:10-4 p. m., Monday, Winter Session. Repeated as

Section II—Spring Session

Limited sections. Room 53 H. A.

A course for both housekeepers and teachers of the subject, applying scientific and economic principles to the problems of the modern housewife, and discussing, both from the ideal and the practical point of view, such topics as:

Income as determining the type of household; the budget and its apportionment; application of scientific management principles to household; household efficiency; household service; apportionment of time; household accounts; home life.

Prerequisite: Administration 1.

\*Administration e5—Problems of the industrial family. Lectures and conferences, readings and investigation. Credit IV. 2 points. Fee \$12. Miss Winslow

Section I—9-10 a. m., Monday and Wednesday, Winter Session. Repeated as Section II—Spring Session

Requires twelve students

A course designed especially for visiting housekeepers in social work, and for public school teachers of domestic science and art. Discussion of detailed systems of household management practised in the home of the industrial class; analysis of expenditures for food, clothing, shelter, and operating expenses, and social life actually made by various families of different nationalities; standards of family life to be developed; and methods of teaching women in their homes.

\* Administration e11L—Domestic laundering. Discussions, demonstrations and laboratory work. Credit IV. 2 points. Fee \$12. Miss Balderston and assistant

Section I-2:10-5 p. m., Monday, Winter Session. Repeated as

Section II—Spring Session, if there is a registration of twelve students

Rooms 53 and 57 H. A.

Limited sections

Intended for the teacher or for the person concerned with household management. It presents the principles and processes included in laundry work; space, equipment, and materials required for work in the home; machinery for domestic work, its cost, care and uses; the processes of laundering; sorting, soaking, removal of stains, disinfecting; methods of handling cotton, linen, woolen, silk; special precautions with colored materials; rinsing, bluing, wringing, drying, starching, dampening, folding, ironing, mangling, rough drying; care of fine work, embroidery, laces; system in the domestic laundry; the household and the commercial laundry.

Recommended preparatory: Chemistry 3A.

\* Administration e21—Marketing. Credit IV. 2 points. Fee \$12 Section III—10–11:50 a. m., Wednesday, Winter Session. Repeated as Section IV—Spring Session

This course deals with the problems of purchasing household and food supplies. It discusses methods of buying, quality, quantity, and tests; ordinary food supplies, and discusses the sources of supply, season and prices.

\* P. A. Physics e31—Physical science in the household. Credit IV. 2 points Winter Session. Mr. Good

3:10-5 p. m., Thursday, Room 411 T. C. Fee \$12

The purpose of this course is to teach how to use and care for the equipment of homes and institutions, with particular reference to sanitary aspects. It will show how modern appliances may be either nuisances or sources of comfort, according as one can or cannot make intelligent use of them. The course will deal with water supply, plumbing, sewers, heating, ventilation, retrigeration, gas supply, stoves, lamps, electric lighting, cooking and heating, telephone, elevators and dumb-waiters, machinery for dishwashing, laundry, and cleaning, fire extinguishers, and general repairs.

\* Household economics e79—Household economic science. Credit IV. 2 points. Fee \$12. Professor Andrews

Section I—3:10-4 p. m., Tuesday and Thursday, Winter Session. Repeated as Section II—Spring Session

Section III—4:10-5 p. m., Monday and Wednesday, Winter Session. Repeated as Section IV—Spring Session

Sections I and II give special emphasis to the budgets of industrial and rural families. Sections III and IV give special attention to family budgets from \$1,500 up.

Deals with the organization and control of family and personal life through the economic relations of the household. The family income and its expenditure, including the following topics: the income, its source, and the equivalent of income in productive labor within the household; family expenditures and their regulation; the budget system; the items of the budget as measures of standards of living; necessaries for efficient living—shelter, food, clothing, and personal life; house ownership versus rental; house maintenance, furnishings, and equipment; operating expenses and the cost of cleanness; the cost of food and clothing; the personal life as reflected in personal expenditure; thrift; methods of saving, as savings banks, investments and insurance—life, accident, and fire.

\* Household economics e81—Household accounts. Credit IV. 2 points Spring Session. Professor Andrews

2:10-4 p. m., Friday. Fee \$12

Gives special attention to household accounts, for the teacher, house manager, and consultant.

House management. A series of ten lectures will be given, beginning October 2. A special circular may be obtained from the Secretary of Teachers College.

Other and more advanced courses in administration, described in the *Announcement of the School of Practical Arts*, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor Gunther

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 2 p. m. on September 25 or February 5. The instructor must be consulted before registration, and written permission obtained.

## INDUSTRIAL ARTS

# Industrial Arts for Teachers

Students who take shopwork in Industrial Arts will be required to purchase from the Bursar of Teachers College a 'laboratory ticket', price \$2, the coupons of which are to be used in paying for special materials required for individual use and for damage to or loss of apparatus in any shops, laboratories, or studios of Teachers College. Unused coupons are redeemable at the end of any Session.

\*Industrial arts e47-48—Industrial arts for junior and regular high schools. Credit IV. 3 points each Session. Mr. BOWMAN

3:10-5 p. m., Monday, Wednesday, and Friday. Room 29 Macy. Fee \$18 each Session

This course includes projects and problems appropriate for the upper grades and high school, or junior high school in: wood, metal, concrete, electrical construction and installation, and printing. Attention is given to the relation of industrial arts work to modern large scale machine production and the applications of power in industry.

\*Industrial arts e47a-e48a—Industrial arts for secondary schools. Credit IV. 4 points for the entire course, Mr. BOWMAN

Thirty lessons. Begins September 29

9 a. m.-12:20 p. m., Saturday. Room 29 Macy. Fee \$12 each Session

\* Industrial arts e49—Printing, publishing, and photography. Credit IV. 2 points, Mr. Bowman

2:10-4 p. m., Tuesday and Thursday, Winter Session. Room 29 Macy. Fee \$12

This course includes principles and practice in composition, imposition, proof-reading and correcting, making up of forms, and press work; design in its application to printing problems; commercial methods in printing and publishing; the printing and binding of books; illustration and color work in printing; the elements of photography, including a study of the camera and the allied processes in photography and the use of photography in printed illustrations.

\* Industrial arts e51—Concrete construction, masonry, and painting. Credit IV. 2 points

2:10-4 p. m., Tuesday and Thursday, Spring Session. Room 29 Macy. Fee \$12

The projects and studies center around the chief divisions of uses of concrete in the industrial world, the construction of typical problems being the core of studies of present conditions and procedure in civic and industrial uses and manufacture.

# Art Industries

For courses in woodcarving, hammered metal, silversmithing, jewelry, and color printing, see under Fine Arts.

# Industrial Arts Education

\*Industrial arts e143-144—Industrial arts for the elementary grades.

Credit IV. 2 points each Session. Fee \$12 each Session. Miss PATRICK

Section I—2:10-4 p. m., Monday and Wednesday

Section III—3:10-5 p. m., Tuesday and Thursday Section IV—9-12:20 a. m., Saturday

This course deals with those typical forms of industrial arts work which are practical in the first six grades of the elementary school.

It aims to secure a method of instruction that will emphasize thinking about concrete objects with relation to industrial uses; the projects include simpler phases of weaving, sewing, clayworking, cookery, wood-, metal-, and paper-working. The application of design to these projects is cared for. The relations of nature-study, geography, history, art, literature and arithmetic to the course are considered.

\* Industrial arts e145-146—Teaching industrial arts in elementary schools. Credit IV. 2 points each Session. Professor Bonser

3:10-4 p. m., Tuesday and Thursday. Fee \$12 each Session For full description see Announcement of School of Practical Arts.

## Textile Industries

Woolens. A series of twelve lectures will be given, beginning October 2. A special circular may be obtained from the Secretary of Teachers College

Silks, ribbons, and pile fabrics. A series of twelve lectures will be given, beginning October 15. A special circular may be obtained from the Secretary of Teachers College

Cottons and cotton mixtures. A series of twelve lectures will be given, beginning October 25. A special circular may be obtained from the Secretary of Teachers College

Other and more advanced courses in Industrial arts, described in the Announcement of the School of Practical Arts, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to the instructor.

#### Mathematics

\* P. A. Mathematics e31-32—Industrial mathematics. Credit IV. 2 points each Session. Mr. Breckenridge

5:10-6 p. m., Tuesday and Thursday. Fee \$12 each Session

This course is designed especially for teachers of mechanics arts in technical or trade schools, and for teachers in elementary or academic high schools who wish to vitalize the teaching of mathematics by the use of practical problems.

Prerequisite: College entrance mathematics or an equivalent experience in mechanic arts.

# MUSIC

### General Art of Music

- \* P. A. Music e25-26—Sight singing. Credit IV. 2 points each Session. Mr. Kraft
- \* A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 2 p. m. on September 25 or February 5. The instructor must be consulted before registration, and written permission obtained.

3:10-4 p. m., Monday, Wednesday and Friday, Room 118 T. C. Fee \$12 each Session

This course develops speed in determining what the notation means and skill in its vocal production. The aim of the work is to provide the general student with the fundamental work necessary for all forms of musical activity and to serve as an introductory course to professional students who are unable to do the work required in Music 13-14—Tone thinking.

\*P. A. Music e13-14—Tone thinking. Music dictation and reading, including harmonic and melodic material. Credit IV. 2 points each Session. Mr. Kraft

4:10-5 p. m.; Monday, Wednesday and Friday, Room 118 T. C. Fee \$12 each Session

This course is basic for all singers, players, and music teachers. It gives practice in describing, in writing and orally, what is heard in music, and includes singing at sight.

Prerequisite: Either Music 25-26 or the ability to write from hearing a simple phrase of music.

\* P. A. Music e42—Musical literature. Credit IV. 2 points Winter Session. Professor Farnsworth and Miss Wiethan

3:10-4 p. m., Tuesday and Thursday, Room 502 Horace Mann School. Fee \$12

The aim of this course is to aid in forming a standard of taste in music by utilizing the unusual musical opportunities that the city affords. The work consists of musical illustrations, with discussions and practice in reporting.

\*P. A. Music e65-66—Chorus singing and conducting. Credit IV. 2 points each Session. Mr. Kraft

II-II:50 a. m., Tuesday, Wednesday and Thursday, Room II8 T. C. Fee \$12 each Session

(a) Discussion of the means employed by the conductor in the interpretation of a composition; preparation of typical programs, giving reasons for choice and order of compositions; review of material suitable for school choruses; the organization of instrumental music in schools and the arrangement of parts for best effect under given conditions.

(b) Practice in chorus singing and conducting by members of the class.

#### Technical Music Courses

\*P. A. Music e15-16—Voice: First year. Individual work in groups limited to four. Credit IV. 2 points each Session. Special fee for Sections II and III, \$25 for each Session. Not charged at \$6 per point

Section II—Room 605 H. A. Miss Daschbach

In this section special groups are formed for kindergartners, practice being given in the music they are required to use. Hours to be arranged

Section III—Room 605 H. A. Hours to be arranged. Mr. Jolliffe

\*P. A. Music e35-36, e55-56, e75-76—Advanced courses in voice. Hours to be arranged. Given in groups; under same conditions as to credit, hours and fees as for the same instructors in Music e15-16. Consult Professor Farnsworth

- \* P. A. Music e27-28—Piano: First year. Credit IV. 2 points each Session. Requires at least six hours' practice a week. Special fee \$25 for each Session. Not charged at \$6 per point. Miss Zerbe
  - (a) Individual work in groups limited to four. Once a week

The work presents the technique of playing, sight-reading, accompanying and drill in methods for concentration and practice, requiring, as a result, the ability to play at least a dozen pieces from memory.

(b) Class lessons: once a week, combining all groups

4:10-5 p. m., Tuesday, and other hours to be arranged with the instructor, Miss Zerbe

Room 118 T. C.

The work includes ear training, interpretation, with examples by both students and instructor. Analyses and estimates are made of a large number of pieces.

\* P. A. Music e37-38, e57-58, e67-68—Advanced courses in piano. Hours to be arranged. Given in groups; under same conditions as to credit, hours and fees as for the same instructors in Music 17-18. Consult Professor Farnsworth

Piano practice—Fee for use of pianos by students registered for eight or more points in a Session is \$4 per Session for six hours or less per week. Arrange hours at the office of Practical Arts

\* P. A. Music e19-20—Organ. Credit IV. 2 points each Session. Special fee, \$35 for each Session. Not charged at \$6 per point. Mr. Fowler

Individual work in groups. Requires three students to form a group; limited to four. Work and hours to be arranged. Consult Professor Farnsworth

Manuals, pedals, technical studies, Bach's Eight Short Preludes and Fugues. Albrechtberger's Trios.

Prerequisite: Elementary piano-playing.

- \* P. A. Music e29-30—Organ. Credit IV. 2 points each Session. Special fee, \$50 for each Session. Not charged at \$6 per point. Mr. LAMOND
- \*P. A. Music e39-40—Violin. Credit IV. 2 points each Session. Special fee, \$35 for each Session. Not charged at \$6 per point. Mr. Stowell

Hours to be arranged. Room 603 H. A.

Individual work in groups limited to four. Requires three students to form a group

The work in this course includes a good position for scales in all keys, bowing, exercises, studies, solos, and special work of the development of good tone, together with ensemble and sight-reading classes.

Other courses in music for teachers, described in the *Announcement of the School of Practical Arts*, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor Farnsworth.

<sup>\*</sup>A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 2 p. m. on September 25 or February 5. The instructor must be consulted before registration, and written permission obtained.

# Speech

Speech e1A—Voice and diction, introductory. Lectures, class exercises, and individual practice. Credit IV. 2 points. Fee, \$12. Professor LATHAM and assistant

10-11:50 a. m., Saturday, Winter Session

Speech e3A. Same as Speech e1A

10-11:50 a.m., Tuesday and Thursday, Spring Session

(I) Breathing, carrying tone, distinct utterance; correction of individual faults—nasality, throatiness, etc.; a practical study of phonetics leading to standard pronunciation of English and to a working knowledge of the facts of speech necessary for teaching speech sounds.

(2) A study of the elements of vocal expression—pitch, inflection, time, etc.; practice in speaking with notes and without notes; effective use of the voice in teaching, with practice in the oral conduct of various school exercises.

Speech e3-e4—Story-telling and reading, introductory. Lectures, practice, criticism, and recitals. Credit IV. 2 points each Session. Fee \$12 each Session. Mrs. HALLOCK

4:10-5 p. m., Monday and Wednesday

This is an elementary course in story-telling and reading as fine arts. It is planned to meet the needs of students intending to use these arts in the home, the school, the playground and social clubs.

Speech e57—Speech correction. Lectures and exercises. Credit IV. 2 points. Fee \$12. Mrs, Scripture

4:10-5 p. m., Tuesday and Thursday, Winter Session

This course is primarily for teachers who will undertake the correction of stuttering, lisping, cluttering, and negligent speech; but others not intending to teach the subject may gain help in correct articulation and enunciation.

Speech e182—Dramatization. Investigation and practical work. 2 points. Fee \$12. Professor LATHAM and others

9-11 a.m., Saturday, Spring Session

This course is given to meet the rapidly increasing demand for guidance in the selection and use of material for original dramatic exercises in schools and social centers. Simple plays will be made and acted. The work of the class will be done in small groups interested in similar problems, and the special aims of individual students will be considered as far as that can be done without slighting attention to basic principles of dramatic expression.

Practical arts e181—School and community festivals. Credit IV. 2 points

9-11:50 a. m., Saturday, Winter Session

A special circular will be issued by Teachers College in September.

# NURSING AND HEALTH

\*Nursing e3—Physical care of infants and small children. Lectures, demonstrations and readings. Credit IV. 2 points. Fee \$12. Dr. Kenyon

Section I—3:10-5 p. m., Monday, Winter Session. Repeated as

Section II-Spring Session

Section III-10-11:50 a. m., Tuesday, Winter Session

Sections II and III require fifteen students

Presents the theory and practice of the care of infants and small children in a series of lectures and demonstrations. The following topics will be treated: the basis in physiologica knowledge for the rational care of the child, the physical care of the infant and child, presenting in turn such topics as the daily régime of the infant, food, sleep, bathing, clothing; the child from the third to the sixth year, nursery, clothing, food.

\* Nursing e5—Elementary home nursing and first aid. Lectures, demonstrations and laboratory practice. Credit IV. 2 points. Fee \$12. Miss JOHNSON

Section I-2:10-5 p. m., Thursday, Winter Session. Repeated as

Section II-Spring Session

Section III-2:10-5 p. m., Friday, Winter Session. Repeated as

Section IV—Spring Session

Instruction in domestic emergencies and first aid, and in simple procedures in the home care of the sick. It includes such topics as the treating of bleeding, wounds, fractures, sprains, fainting, convulsions, shock, asphyxiation and poisoning, caring for the sick when the professional services of a nurse are not required, including care in colds and other slight indispositions; care of children and aged; simple sick-room procedures and food for the sick.

\* Nursing e7—Occupations for invalids. Lectures and laboratory work. Credit IV. 2 points. Spring Session. Miss Collins

3:10-6 p. m., Wednesday. Fee \$12

Requires fifteen students

Deals with occupations—handwork, plays, games, etc., as a method of treatment in illnesses of various kinds. It discusses the psychological, social and economic bearings of the subject, the relation of the patients' mental and physical limitations to kinds of occupation prescribed, and wage-earning possibilities in occupational work in private homes or institutions. Certain projects will be worked out in paper, textile, clay, wood, metal and other materials.

**Principles of teaching for public health nurses.** A series of ten lectures will be given, beginning October 1. A special circular may be obtained in September from the Secretary of Teachers College.

Biology e4x—Biology for sex-education. I point Spring Session, when taken parallel with any course in hygiene or biology. Open only to women. Miss Stackpole

5:10-6 p. m., Monday. Room 421 T. C. Fee \$6

A series of fifteen illustrated lectures and laboratory demonstrations dealing with the anatomical, physiological, embryological and bacteriological facts of biology which are necessary for understanding sex-education.

Other and more advanced courses in nursing and health, described in the *Announcement of the School of Practical Arts*, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor NUTTING.

<sup>\*</sup> A limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 2 p, m, on September 25 or February 5. The instructor must be consulted before registration, and written permission obtained.

# PHYSICAL EDUCATION

The following extension courses are given in the Thompson Building of Teachers College October 1, 1917, to May 15, 1918. First half-year (Winter Session) begins September 26. Second half-year (Spring Session) begins February 6

Lockers are available for women only. A deposit of twenty-five cents must be made for each locker key. This must be redeemed and gymnasium suits removed

before June 6

The swimming pool is reserved for women and children

Gymnasium shoes must be soft-soled and without heels

Information concerning gymnasium and swimming suits may be obtained from the Secretary of the Department of Physical Education

# Special Lessons

A number of special series of lessons for women and children in gymnastics, folk and natural dancing, swimming, and corrective gymnastics will be given from September, 1917, to May, 1918, in the Thompson Building of Teachers College by the School of Practical Arts in cooperation with the University Institute of Arts and Sciences. Many of the most popular series are given in the evening. A special circular may be obtained from the Secretary of Teachers College

\* Physical education e1-2—Elementary practice for women. Credit IV. 2 points of the entire course. Fee \$6 each Session

Section I—4:10-5 p. m., Tuesday and Thursday, Room 255 Thompson Section II—5:10-6 p. m., Monday and Wednesday

The work of this course is arranged with reference to the needs of those who wish to secure material for teaching simple symnasium exercises, games and dances, such as are suitable for classroom or playground. The exercises include those with and without apparatus; gymnastic drills, games, swimming and elementary dancing.

\* Physical education e3-4—Advanced practice for women. Credit IV. 2 points for the entire course. Fee \$6 each Session. Miss YUNCK 3:10-4 p. m., Wednesday and Friday

This course is arranged to give practice in dancing to students who have already had two years' college training or its equivalent.

\* Physical education e177-178—The dramatic game. Practice. Credit IV. 2 points. Miss Colby

4:10-5 p. m., Tuesday and Thursday, Thompson Gymnasium. Fee \$12 each

This course presents the earliest forms of the dramatic game. Studies are made of children's games from all parts of the world, and of the simplest dances and dramas of primitive people and of the folk of Europe.

Practical Arts e181—School and community festivals. Credit IV. 2 points

9-11:50 a. m., Saturday, Winter Session

A special circular will be issued by Teachers College in September.

Other courses in physical education, with numbers below 100, described in the *Announcement of the School of Practical Arts*, may be made available for specially qualified non-matriculated students who bring to the Director of the School of Practical Arts the written approval of Professor Wood.

# ACADEMIC CALENDAR

## 1917-1918

1917

July 9-Monday. Eighteenth Summer Session begins.

Aug. 17-Friday. Eighteenth Summer Session ends.

Sept. 17-Monday. Entrance and deficiency examinations begin.

Sept. 19—Wednesday. Registration (including the payment of fees) begins.

Sept. 26—Wednesday. Winter Session, 164th year, begins.

Oct. 6—Saturday. Last day for changes in registration.

Nov. 6—Tuesday. Election Day, holiday.

Nov. 28-Wednesday. Annual Thanksgiving Service in St. Paul's Chapel.

Nov. 29-Thursday

to

Dec. I—Saturday, inclusive, Thanksgiving holidays.

Dec. 9-Sunday. Annual Commemoration Service in St. Paul's Chapel.

Dec. 22—Saturday

to

1918

Jan. 7—Monday, inclusive, Christmas holidays.

Jan. 10-Thursday. Last day for filing applications for entrance examinations.

Jan. 17—Thursday. Mid-year entrance examinations begin.

Jan. 28—Monday. Mid-year examinations in Extension Teaching begin.

Feb. 4—Monday. Registration (including the payment of fees) begins.

Feb. 5—Tuesday. Winter Session ends.

Feb. 6—Wednesday. Spring Session begins. University Service in St. Paul's Chapel.

Feb. 12-Tuesday. Alumni Day.

Feb. 22-Friday. Washington's Birthday, holiday.

Mar. 28—Thursday

to

April 1—Monday, inclusive, Easter holidays.

May 20-Monday. Final examinations begin.

May 30-Thursday. Memorial Day, holiday.

June 2—Sunday. Baccalaureate Service.

June 3-Monday. Class Day.

June 5—Wednesday. Commencement Day.

June 12—Wednesday. Spring Session ends.

June 17—Monday. Entrance examinations begin.

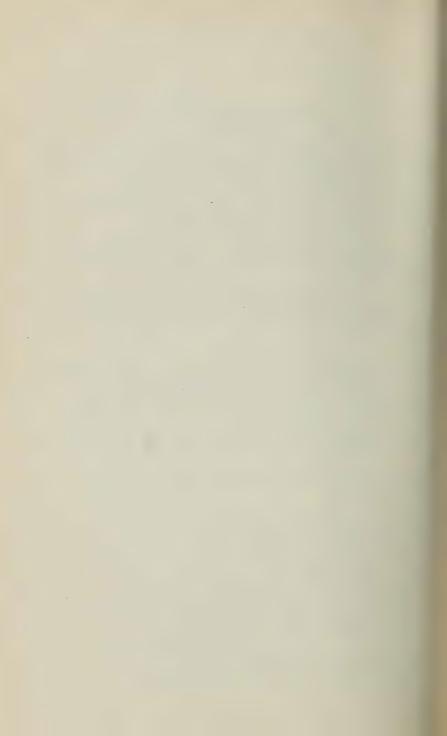
July 8-Monday. Nineteenth Summer Session begins.

Aug. 16—Friday. Nineteenth Summer Session ends.

Sept. 16-Monday. Entrance and deficiency examinations begin.

Sept. 18—Wednesday. Registration begins.

Sept. 25—Wednesday. Winter Session, 165th year, begins.











JUL LAN

December 22, 1917

Eighteenth Series, No. 5



## Columbia University Bulletin of Information

MAY 1.3 1918

# Extension Teaching

Afternoon, Evening and Saturday Classes

Spring Session
February 6 to June 12, 1918

PUBLISHED BY
Columbia University
in the City of Aew York
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## Columbia University Bulletin of Information

[Issued thirty-five times during the academic year, monthly in November, and weekly between December and July. Entered as second-class matter at the New York, N. Y., Post Office, Dec. 22, 1900, under the Act of July 16, 1894.] These include:

I. Annual Reports of the President and Treasurer to the Trustees.

2. The Catalogue of the University, price 25 cents, and the Announcements of the several Colleges and Schools, and of certain Divisions, issued in the Spring, and relating to the work of the next year. These are made as accurate as possible, but the right is reserved to make changes in detail as circumstances require. The current number of any of these Announcements will be sent without charge upon application to the Secretary of the University.

U.P.O.-30,000-1917.

The Office of Extension Teaching is Room 301 University Hall

## OFFICERS OF EXTENSION TEACHING 1917-1918

NICHOLAS MURRAY BUTLER, President of the University

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Professor of Latin

Director of Extension Teaching and the School of Business

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## University Officers of Administration

Frank Diehl Fackenthal, A.B. Secretary of the University

Frank A. Dickey, A.B. Registrar

CHARLES S. DANIELSON
Bursar

#### COURSES OF THE SPRING SESSION 1917-1918

Courses will begin February 6, 1918.

Admission. No examinations are required for admission, but in cases of doubt, students must satisfy the Administrative Board that they can pursue the courses with advantage. All classes are open to both men and women.

Registration. All students are obliged to register in person. Students who took courses in the Winter Session and who desire to continue those courses in the Spring Session, or to add others, are required to renew their registration at the beginning of the Spring Session. Such renewal must be completed, including payment of fees, by February 16. After that date, renewal or payment of fees constitutes late registration and may be accepted only upon the payment of the statutory fee of \$5.00 therefor.

When students report at the office of the Registrar before February 16 that they have discontinued any or all courses for which they were duly registered, the tuition fees are returned; when they report after that date no rebate or credit is allowed. In the case of new students who register for the first time after February 9, one week from the date of registration is allowed for such report.

The office of the Registrar, Room 315 University Hall, will be open in addition to the regular daily hours, 9 a. m. to 5 p. m. (except Saturday), from January 31 to February 15 from 7 to 9:30 p. m., and thereafter from 7 to 9 p. m. The Saturday hours are from 9 a. m. to 12 m.

Fees. University Fee. For students in Extension Teaching exclusively, for each year or any part thereof, \$5.00.

Tuition Fees. The fee for each Session is announced with the description of the course.

Payment of Fees. Under the University Statutes registration is not complete until fees have been paid. Students postponing the payment of fees after registration, beyond February 16, or in any case for more than one week after their registration, will be liable to a penalty fee of \$5.00.

Rebates. Students who are obliged to withdraw from all of their courses because of serious personal illness may be allowed a partial rebate of their tuition fees. In considering such applications, the student will ordinarily be charged ten per cent. of the total tuition fee for each week of the Session up to the date his notice of withdrawal is received by the Registrar.

The office of the Bursar will be open daily from 9:30 a. m. to 3:30 p. m., and on Saturday morning from 9:30 a. m. to 12 m. This office will also be open every evening from 7 to 9:30 (except Saturday), from January 31 to February 15, and from February 18 to March 1, from 7 to 9 on Monday and Friday evenings only.

General Information. For further information concerning these courses or concerning any questions that may arise, students should call at the office of the Director, Room 301 University Hall, which is open from 9-5 daily, Saturday 9-1.

This office will also be open evenings (except Saturdays) from 7:30 to 9:30, January 31 to February 15.

Adviser to Women Students. Women students are invited to apply freely to this officer for help and advice in regard to all matters concerned with their welfare at the University. Those under twenty-five years of age, not living with parents or relatives, must secure before registration her endorsement of their place of residence. Students may confer with the Adviser on any afternoon, except Saturday, between 2 and 4, in Room 301 University Hall, or, if necessary, by special appointment.

Intramural collegiate and professional courses will be given at Columbia University. Extramural courses will be given at the Long Island College Hospital, corner of Henry and Amity Streets, Brooklyn, at Scranton, Yonkers, Bridgeport, Garfield, Jersey City, Springfield and Trenton, and at centers where there may

be sufficient demand.

Classes will also be conducted at the New York Chapter of the American Insti-

tute of Banking, 138 East 35th Street, and at 203 Broadway.

The most convenient means of access to the University are the Subway (Broadway Branch) to 116th Street, Columbia University Station, the Sixth or Ninth Avenue Elevated to 110th Street Station, and Broadway or Amsterdam Avenue surface lines.

Attention is called to the classes in Spoken Language which begin February 11. A special pamphlet describing these conversational courses will be sent upon application.

Credits. Credit for courses in Extension Teaching is allowed for various degrees, in accordance with the regulations which are stated in the full *Announcement of Extension Teaching*.

For courses numbered 100 to 299, inclusive, undergraduate credit will be determined by the various faculties under which the student intends to apply for such

recognition.

All courses marked Credit I—May be counted toward the degrees of A.B. and B.S. in all parts of the University where these degrees are given and toward appropriate diplomas in teaching. For other courses, which under certain conditions may be offered for credit by candidates for the A.B. or B.S. degree, see Credit II.

IB—May be counted toward the degrees of A.B. and B.S. in Barnard College only. Ic—May be counted toward the degree of A.B. in Columbia College only.

All courses marked Credit II—May be offered by graduate students toward the higher degrees. Open also to undergraduates on the approval of the appropriate Committee on Instruction obtained in advance.

All courses marked Credit IV—May be counted for matriculated students in the School of Practical Arts toward the degree of B.S.

All courses marked Credit V—May be counted toward the appropriate degrees in the Schools of Mines, Engineering and Chemistry, and Architecture.

All courses marked Credit IX—May be counted toward the degree of B.S. in Business.

Any course numbered 100 or above may be counted for undergraduate degrees under the general rules.

The fees and points as stated with the various courses are for the Spring Ses sion. In the case of non-credit courses, the number of points is published merely to give a general idea of the amount of work required of the student.

Courses that are marked \* are open only to students who have taken the pre ceding Session or its equivalent. All other courses are open to new student without restriction, except as noted in the description.

No assignment of rooms for classes has been made in this Announce ment. The place of meeting for each class may be learned by consulting a special bulletin which may be secured at any time during hours, it the office of the Secretary, Room 213 Library, of the Registrar, Eas Corridor, University Hall, or in the office of the Director of Extension Teaching, Room 301 University Hall.

#### Agriculture

Students irregularly prepared and desirous of undertaking courses in agricul ture should consult Professor O. S. Morgan; office hours, 11 a. m.-12 m., Wednes day, Thursday, and Saturday, Room 511 Schermerhorn Hall, before registering for such classes.

Agriculture e2—Introductory agriculture. Lectures and laboratory Credit I, IV. 3 points. Fee \$18. Professor Morgan

9:10-10:50 a. m., Saturday (lectures)

4:10-6 p.m., Wednesday (laboratory)

Agriculture e2a—Course e2 without laboratory work. By special arrange ment laboratory work may be included. 2 points. Fee \$12. Professor MORGAN

Section 1-9:10-10:50 a. m., Saturday

Section 2-7:40-9:20 p. m., Friday

Agriculture e2b—Laboratory work only. 1 point. Professor Morgan 4:10-6 p. m., Wednesday. Fee \$6

Agriculture e4—Soils and fertilizers. Lectures and laboratory. Credit I, IV. 3 points. Fee \$18. Professor Morgan

2:10-3:50 p.m., Thursday (lectures)

2:10-4 p. m., Friday (laboratory)

Agriculture e16—Small fruits. Lectures and laboratory. Credit I, IV, in special cases. 3 points. Fee \$18. Mr. KAINS

4:20-6 p. m., Monday (lectures)

4:20-6:10 p. m., Thursday (laboratory)

Agriculture e16a—Small fruits. Lectures. Credit I, IV, in special cases. 2 points. Mr. KAINS

4:20-6 p. m., Monday. Fee \$12

Agriculture e18—Vegetable culture. Lectures and laboratory. Credit I, IV, in special cases. 3 points Winter Session. Fee \$18. Mr. KAINS

7-8:40 p. m., Thursday (lectures)

7-8:50 p. m., Monday (laboratory)

The vegetable culture work will comprise a study of the preparation of soil and composts; seed testing and sowing; hot-beds and cold frames, transplanting, companion and succession cropping; tillage, spraying, harvesting, storage, marketing, disposal of low grade products in kitchen; kitchen, farm and market gardening.

Agriculture e18a-Vegetable culture. Lectures. Credit I, IV, in special ases, 2 points. Mr. KAINS 7-8:40 p. m., Thursday. Fee \$12

## Anthropology

Anthropology e2—Ethnography of Africa. 2 points. Mrs. Donohugh 7:30-9:10 p. m., Monday. Fee \$12

#### Architecture

High school graduates entering the courses in architecture in February are dvised to take as many as possible of the following courses:

Architecture e4, Projections and Intersections

Architecture e8a, Perspective; or Architecture e6a, Shades and Shadows One of the following classes: Architecture e30, Architecture e32, Architecture 34, and Architecture e80

\*Architecture e2-Applied elements. Credit V. 8 points. Professor **HARRIMAN** 

8:20-10 p. m., Tuesday and Friday. Fee \$48

Architecture e4—Projections and intersections. 3 points. Mr. ALLEN 8-8:50 p. m., Monday, and 7-7:50 p. m., Thursday. Drafting, 8-9:40 p. m., 'hursday. Fee \$18

Architecture e3 repeated in the Spring Session. Will not be given for less than ten students.

Architecture e6—Descriptive geometry. Credit V. 4 points. Mr. ALLEN 8-8:50 p. m., Monday, Wednesday, and Friday. Fee \$24 Will not be given for less than ten students.

Architecture e6a-Shades and shadows. Credit V. 4 points. Mr. OLLER

7-7:50 p. m., Monday, Wednesday, and Friday. Fee \$24

Architecture e5 repeated in Spring Session.

Will not be given for less than ten students.

Architecture e8a-Perspective. Credit V. 3 points. Mr. ALLEN 7-7:50 p. m., Monday and Wednesday. Drafting: 8-9:40 p. m., Wednesday. 'ee \$18

Architecture e7 repeated in the Spring Session.

Architecture e12—Specifications. Credit V. 3 points. Mr. POND 7-7:50 p. m., Monday and Wednesday. Fee \$18

Open only with the consent of the instructor.

Architecture e16-Building materials and construction. Credit V. 3 oints. Mr. WALSH

8-8:50 p.m., Tuesday and Thursday. Fee \$18

Architecture e20—Architectural engineering. Credit V. 3 points. Mr. Pond

8-8:50 p. m., Monday and Wednesday. Fee \$18

Open only with the consent of the instructor.

Architecture e28—Medieval architecture. Credit I. 2 points. Mr. HOPKINS

4-4:50 p. m., Tuesday and Thursday. Fee \$12

Architecture e32—Ancient ornament. Credit I, V. 1 point. Mr. HAMLIN 6-6:50 p. m., Friday. Fee \$6

No credit will be given for Architecture e32 unless taken with one other course.

Architecture e34—Medieval ornament. Credit I, V. 1 point. Mr. Hamlin 6-6:50 p. m., Tuesday. Fee \$6

Open only with the consent of the instructor.

No credit will be given for Architecture e34 unless taken with one other course.

Architecture e72—Drawing. Credit V. 2 points. Professor Harriman 8-9:40 p. m., Monday and Thursday. Fee \$12

Architecture e71 is prescribed for e72.

Open only with the consent of the instructor.

Architecture e76—Drawing. Credit V. 2 points. Professor HARRIMAN 8-9:40 p. m., Monday and Thursday. Fee \$12

Open only with the consent of the instructor.

Prerequisite: Architecture e71-72, or its equivalent.

Architecture e80—Drawing. Credit V. 2 points. Professor HARRIMAN 8-9:40 p. m., Monday and Thursday. Fee \$12

Architecture e71 repeated in Spring Session.

Architecture e82—Modeling. Credit V. 2 points. Mr. Gregory I-3:40 p. m., Saturday. Fee \$12

## Architectural Design

The courses in architectural design are conducted on the basis of a progressive series of problems and sketches. These are assigned in the form of programs issued at stated intervals. The work of the students, delivered at a designated time, is passed upon by a jury of architects, the whole program being in this respect identical with that of the Society of Beaux-Arts Architects. A registration fee of two dollars is required by this Society; this must be paid to the Chairman of the Committee on Education, 126 East 75th Street, New York City. More detailed information on this head will be found in a special folder to be obtained in Room 401 Avery Hall.

Tuition Fees for Design. The tuition fee in design, regardless of course, is \$25 per Session. Tuition fees are under no conditions returnable even though the full Session's work is not taken. Students are advanced in accordance with the regulations of the Society of Beaux-Arts Architects on the basis of values obtained.

Note. The full fee covers registration for six regular problems of the Beaux-Arts Society. No additional fee is required for ten-hour sketches or for archæology or measured drawing problems. Upon previous application to Curator Bach, 401 Avery Hall, qualified students may also be admitted without additional fee to other problem competitions conducted by the School of Architecture.

Sketches and problems will be accepted only after tuition fees have been paid

as indicated above.

Prerequisites for all courses. Work in the elements of architecture and shades and shadows, corresponding respectively to Architecture e1, e2, and e5, or their equivalents, such equivalents to be determined by Mr. Ware before registration. Those who wish subsequently to transfer their credits to the records of the School of Architecture must also submit descriptive geometry, Architecture e6, or its equivalent.

Architecture e62—Elementary design. Credit V.<sup>1</sup> 20 hours. Associate Ware, Mr. Corbett and Mr. Schulz

Fee, see above

Open only with the consent of the instructors.

Architecture e64—Intermediate design. Credit V. 20 hours. Associate Ware, Mr. Corbett and Mr. Schulz

Fee, see above

Open only with the consent of the instructors.

Architecture e66—Advanced design. Credit V. 20 hours. Associate Ware, Mr. Corbett and Mr. Schulz

Fee, see above

Open only with the consent of the instructors.

\*Architecture e68—Thesis. Credit V. 4 points. Associate Ware and Mr. Corbett

Fee \$24

### ASTRONOMY

Astronomy e2—Introduction to the science. Credit I. 2 points. Mr. Brainin

7:10-9 p. m., Friday. Fee \$12

Astronomy er repeated in the Spring Session.

#### BOOKKEEPING

\*Bookkeeping e2—Secretarial bookkeeping. 2 points. Fee \$12. Mr. C. C. Hughes

Section 1-9:10-10:45 a. m., Saturday

Section 2-11 a. m.-12:40 p. m., Saturday

1 Students desiring credit for this course in the School of Architecture must submit a complete set of drawings done in Extension Teaching up to the time of the application for transference of credit and bearing the attestation of the instructor in charge. Requests for such transference of credit should be made to Mr. R. F. BACH, Curator of the School of Architecture, or left in writing for him at the office of the Director of Extension Teaching. The difference in tuition fees must be paid.

Bookkeeping e4—Secretarial bookkeeping. 2 points. Mr. C. C. Hughes 4-5:40 p. m., Wednesday. Fee \$12 A course for beginners.

#### BOTANY

Botany e2—Nature and development of plants. Lectures and laboratory. Credit I, IV. 4 points. Dr. Dodge and Mr. Nixon 4-6:30 p. m., Tuesday and Friday. Fee \$24

Botany e2a—General botany. Lectures and laboratory. Credit I, IV. 2 points. Dr. Dodge and Mr. Nixon

1:10 p. m., Saturday; 2:10-4 p. m., laboratory. Fee \$12

Botany e4—Edible and poisonous fungi. Credit IV. 2 points. Dr. Dodge 2:10 p. m., Saturday; 3-4 p. m., laboratory. Fee \$12

Botany e6—Students having completed the preceding courses may continue their work by registering for this class, the hours and character of the work to be determined upon consultation with Professor HARPER. Credit I. 2 points. Fee \$12

#### BUSINESS

A special circular will be sent on application to the Secretary of Columbia University.

#### Business

## Undergraduate Courses

Business e8—Business organization and administration. Credit IX. 2 points. Fee \$12. Professor HAIG and Mr. STOCKDER

Section 1-4:30-6:10 p. m., Tuesday

Section 2-7:40-9:30 p. m., Tuesday

Open only with the consent of the instructor.

Business e14—Advertising display. 2 points. Mrs. Hubbart 7:40-9:30 p. m., Wednesday. Fee \$12

Business e16—Advanced advertising. Credit IX. 2 points. Mr. Hubbart 7:40–9:30 p. m., Tuesday. Fee \$12

Prerequisite: Business e15 or equivalent.

Business e16a—Practical advertising. Credit IX. 2 points. Mr. Hubbart 7:40-9:30 p. m., Monday. Fee \$12

Identical with Business e15.

Business e22—Commercial art. 2 points. Mr. Link 7:40-9:30 p. m., Friday. Fee \$12

Business e24—First year accounting. Credit IX. 2 points. Fee \$12

Section 1-7:40-9:30 p. m., Monday. Mr. Baltz

Section 2-7:40-9:30 p. m., Monday. Mr. BICKELL

Section 3-7:40-9:30 p.m., Tuesday. Mr. WOOLHOUSE

Section 4—7:40-9:30 p. m., Wednesday. Mr. Dohr

Section 5-7:40-9:30 p. m., Thursday. Mr. BICKELL

Section 6-7:40-9:30 p. m., Friday. Mr. BAKER

Open only with the consent of the instructors.

Business e24a—First year accounting. Credit IX. 2 points. Fee \$12 Section 1—7:40-9:30 p. m., Thursday. Mr. Barber

Section 2-7:40-9:30 p. m., Wednesday. Mr. Hughes

Identical with Business e23, the first half of the first year's work in accounting.

Business e26—Second year accounting. Credit IX. 2 points. Fee \$12 Section 1—7:40-9:30 p. m., Monday. Mr. Dohr

Section 2-7:40-9:30 p. m., Tuesday. Mr. Hughes

Section 3-7:40-9:30 p. m., Thursday. Mr. KOOPMAN

Open only with the consent of the instructors.

Prerequisite: Business e23-24.

Business e26a—Second year accounting. Credit IX. 2 points. Mr. Koopman

7:40-9:30 p. m., Friday. Fee \$12

Identical with Business e25, the first half of the second year's work in accounting. Prerequisite: Business e23-24.

Business e28—Cost accounting. Credit IX. 2 points. Fee \$12 Section 1—7:40-9:30 p. m., Wednesday. Mr. ROHRBACH

Section 2-7:40-9:30 p. m., Friday. Mr. Howard

Open only with the consent of the instructors.

Prerequisite: Business e23-24.

Business e46—Corporation finance. Credit IX. 2 points. Professor Lyon 7:40-9:30 p. m., Monday. Fee \$12

Open only with the consent of the instructor.

Business e62—Business mathematics. 2 points. Mr. Van Tuyl. 7:40-9:30 p. m., Tuesday. Fee \$12
Open only with the consent of the instructor.

\*Business e74—Contracts. Credit IX. 2 points. Professor GIFFORD 7:40-9:30 p. m., Thursday. Fee \$12

Business e76—Negotiable instruments. Credit IX. 2 points. Mr. Currier 7:40-9:30 p. m., Wednesday. Fee \$12

Business e78—Life insurance. Credit IX. 2 points. Professor HUEBNER 5:30–7:20 p. m., Friday, 203 Broadway, near Fulton Street. Fee \$12 Open only with the consent of the instructor.

Business e82—Fire insurance. Credit IX. 2 points. Dr. Blanchard 5:30-7:20 p. m., Thursday, 203 Broadway, near Fulton Street. Fee \$12

Business e86—Latin-American commercial law. Credit IX. 2 points. Mr. Obregon

7:40-9:30 p. m., Thursday. Fee \$12

Business e90—History of American commerce. Credit IX. 2 points. Professor Van Metre

7:40-9:30 p. m., Friday. Fee \$12

Business e92—Commercial geography. Credit I, IV. 2 points. Mr. Smith 7:30–9:20 p. m., Wednesday. Fee \$12

Business e98—Foreign salesmanship. Credit IX. 2 points. Dr. MAC-ELWEE

5:10-6:50 p. m., Tuesday, 203 Broadway, near Fulton Street. Fee \$12

#### Graduate Courses

Business e108—Advanced business organization and administration. Credit II, IX. 3 points. Professor HAIG

4:10-6 p. m., Thursday. Fee \$18

Open only with the consent of the instructor.

Business e110—Problems of personnel management. Credit II, IX. 3 points. Mr. Tead

7:30-9:20 p. m., Friday. Fee \$18

This course is especially designed for those who are training for or engaged in the work of dealing with employees in stores and factories. It will deal primarily with the problems that center about the maintenance of an efficient and willing working force.

Business e118—Psychology of advertising and selling. Credit II, IX. 3 points. Fee \$18. Professor HOLLINGWORTH

Section 1-7:40-9:30 p. m., Monday

Section 2-7:40-9:20 p. m., Thursday

New students shall consult the instructor before registering for this course.

Business e130—Third year accounting. Credit II, IX. 2 points. Mr. Dohr

7:40-9:30 p. m., Friday. Fee \$12

Open only with the consent of the instructor.

A charge will be made for the problems.

Prerequisite: Business e25-26.

Business e132—Auditing, theory and practice. Credit II, IX. 2 points. Professor Montgomery and Mr. Lingley

7:40-9:30 p. m., Thursday. Fee \$12

Open only, with the consent of the instructor.

Prerequisite: Business e25-26.

Business e134—Accounting laboratory. Credit II, IX. 2 points. Fee \$12. Mr. Byrnes

Section 1-7:20-9:30 p. m., Monday

Section 2-7:20-9:30 p. m., Wednesday

Open only with the consent of the instructor.

Prerequisite: Business e25-26 and the student should be pursuing Business e131-132 as a parallel course.

Business e148—Investments. Credit II, IX. 3 points. Professor Lyon 7:40-9:30 p. m., Tuesday. Fee \$18

Open only with the consent of the instructor.

Prerequisite: Business e45-46.

Business e168—Railway traffic and rates. Credit II, IX. 3 points. Professor VAN METRE

5:20-7 p. m., Wednesday, 203 Broadway, near Fulton Street. Fee \$18

Business e180—Insurance problems. Credit II, IX. 3 points. Dr. Blanchard

3:10-4:50 p. m., Monday. Fee \$18

Business e190—Theory and practice of ocean transportation. Credit II, IX. 3 points. Dr. MacElwee

5:10-6:50 p. m., Monday, 203 Broadway, near Fulton Street. Fee \$18

History e178—Latin America: industry; transportation; commerce. Credit II, IX. For those taking both hours, 3 points. Professor Shepherd 7:30-8:20 p. m., lecture; 8:20-9:10 p. m., conference, Monday. Fee \$18 Open only with the consent of the instructor.

#### Economics

\* Economics e2—Principles of economics. Credit I, IV. 3 points. Fee \$18

Section 1-7:30-10 p. m., Saturday. Professor VAN METRE

Section 2—7:30-10 p. m., Wednesday. Professor McCrea

Section 3-4:30-5:45 p. m., Wednesday and Friday. Dr. BLANCHARD

Economics e2a—Principles of economics. Credit I, IV. 3 points. Fee \$18. Mr. ROBINSON

Section 1-4:30-5:45 p. m., Tuesday and Friday

Section 2-7-9:30 p. m., Wednesday

Economics er repeated in the Spring Session for new students. A beginning class.

For other courses in economics, see p. 25.

#### CHEMISTRY

Chemistry eA2—General chemistry. Course eA1 repeated in the Spring Session for students desiring to begin in February. Credit I, IV. 4 points. Mr. HAESELER and assistants

7-9:50 p. m., Tuesday, and 7-8:50 p. m., Friday. Fee \$24

Lecture, 7-7:50 p. m., Tuesday and Friday

Recitation, 8-8:50 p. m., Friday

Laboratory, 8-9:50 p. m., Tuesday

Deposit for breakage, \$15.

Chemistry e4—General inorganic chemistry. 3 hours' classroom and 6 hours' laboratory work a week. Credit I, IV, V. 5 points. Identical in content and credit with Chemistry e67. Mr. HAESELER and assistants

7-9:50 p. m., Tuesday, Wednesday, and Friday. Fee \$30

Lecture, 9-9:50 p. m., Tuesday, Wednesday, and Friday

Laboratory, 7-8:50 p. m., Tuesday, Wednesday, and Friday

Open only with the consent of the instructor.

Deposit for breakage, \$15.

Prerequisite: Chemistry eA1, eA2, or the equivalent, and elementary physics.

Chemistry e6—General inorganic chemistry. 3 hours' classroom and 6 hours' laboratory work a week. Credit I, IV, V. 5 points. Professor Neish and assistants

7-9:50 p. m., Tuesday, Wednesday, and Friday. Fee \$30

Lecture, 7-7:50 p. m., Tuesday, Wednesday, and Friday Laboratory, 8-9:50 p. m., Tuesday, Wednesday, and Friday

Deposit for breakage, \$15.

Prerequisite: Chemistry eA1 or eA2 or the equivalent.

Chemistry e12—Qualitative analysis. I hour classroom and 6 hours' laboratory work a week. Credit I, IV, V. 4 points. Mr. Andrews

7-9:50 p. m., Tuesday; 7-8:50 p. m., Wednesday and Friday. Fee \$24 Lecture, 7-7:50 p. m., Wednesday

Laboratory, 7-9:50 p. m., Tuesday; 8-8:50 p. m., Wednesday; and 7-8:50 p. m., Friday

This course is a continuation of Chemistry err.

Prerequisite: Chemistry e14, 14- or -12.

Deposit, \$15.

NOTE. Students who have previously completed the greater part of this course may with the consent of the Director, register for the remainder, counting it 1 to 3 points.

Chemistry e14—Qualitative analysis. 2 hours' classroom and 6 hours' laboratory work a week. Credit I, IV, V. 5 points. Mr. Andrews

7-9:50 p. m., Tuesday and Wednesday and 7-8:50 p. m., Friday. Fee \$30 Lecture, 7-7:50 p. m., Tuesday and Friday

Laboratory, 8-9:50 p.m., Tuesday; 7-9:50 p.m., Wednesday; and 8-8:50 p.m., Friday

Identical with Chemistry err.

Prerequisite: Chemistry e6-7, 6-7, e3-4 or 3-4.

Deposit for breakage, \$15.

Chemistry e46—Organic chemistry. Short course. 1½ hours' classroom and 3 hours' laboratory work a week. Credit I, IV. 3 points. No credit for Chemistry e45 or e46 separately. Dr. FISHER and assistant

7-9:15 p. m., Tuesday and Friday. Fee \$18 Lecture, 7-7:40 p. m., Tuesday and Friday

Laboratory, 7:40-9:15 p. m., Tuesday and Friday

Open only with the consent of the instructor.

Deposit for breakage, \$25.

Prerequisite: Chemistry e3-4, e6-7 or the equivalent, and elementary physics. Chemistry e11 or e14 is recommended also.

Equivalent to Chemistry 46.

#### CONTEMPORARY LITERATURE

Contemporary literature e2—Modern European literature exclusive of Russian. Lectures, readings and discussions. 2 points. Dr. Brewster

4:30-5:45 p. m., Wednesday. Fee \$12

Open only with the consent of the instructor.

Contemporary literature e4—Modern Russian literature. Lectures, readings and discussions. 2 points. Dr. Brewster

3:10-4:25 p. m., Wednesday. Fee \$12

Contemporary literature e6—Modern poetry. 2 points. Miss Hull 3:10-4:25 p. m., Thursday. Fee \$12

Open only with the consent of the instructor.

#### DRAWING

Drawing eW2-Freehand drawing. 2 points. Mr. BEANS

1:30-5:30 p. m., Saturday. Fee \$12

Drawing eWI repeated in the Spring Session.

#### **EDUCATIONAL DRAMATICS**

Educational dramatics eX2—Educational player method: theory, demonstration, and practice. 2 points. Mrs. FRY

8-10 p. m., Monday and Friday. Fee \$12

Exercises displaying the automatic nature of body-response; exercises developing spontaneous speech; development of speech and associate expression from text.

This course ends April 6, 1918.

#### **ENGINEERING**

## Civil Engineering

Note. With the exception of Civil engineering e2 these courses are intended solely for men already engaged in practical work. They do not correspond to day courses and no university credit is allowed for them. Students should note the prerequisites and are urged to confer with the instructor when in doubt as to the requirements. In connection with the course in surveying, attention is called to the complete practical courses given during the summer at Camp Columbia, Morris, Conn. These courses are open to properly qualified students who have fulfilled the necessary prerequisites. For further information address the Secretary, Columbia University, New York.

\*Civil engineering e2—Theory of plane surveying. Equivalent to Course CE2 advised for all students in the college preparatory course preliminary to the graduate courses in civil, mining, metallurgical and sanitary engineering. Credit I, V. 2 points. Professor FINCH

7:30-9:10 p. m., Wednesday. Fee \$12

Prerequisite: Plane trigonometry (see Structural mechanics eXI-X2) or equivalent; also Winter Session prerequisite for Spring Session.

\* Civil engineering eY2—Plain and reinforced concrete construction. 2½ points. Professor FINCH

7:30-9:10 p. m., Thursday. Fee \$15

Prerequisites: Structural mechanics eZ<sub>1</sub>-Z<sub>2</sub> and Mechanical drafting e<sub>1</sub>-2 or equivalent; also Winter Session prerequisite to Spring Session.

\*Civil engineering e4—Foundations and masonry construction. 2 points. Professor Finch

7:30-9:10 p. m., Monday. Fee \$12

Prerequisites: Structural mechanics eZI-Z2 and Mechanical drafting eI-2 or equivalent.

## Electrical Engineering

Electrical engineering e2—Principles of direct-current machinery. Lectures and laboratory. 3 points. Mr. Keller

7:30-9:10 p. m., Tuesday and Friday. Fee \$18

Open only with the consent of the instructor.

Prerequisite: Electrical engineering er.

Note. A deposit of \$10 to cover possible breakage is required of students taking Electrical engineering e2.

Electrical engineering e4—Principles of alternating current machinery. Lectures and laboratory. 3 points. Professor Hehre

7:30-9:10 p. m., Monday and Thursday. Fee \$18

Open only with the consent of the instructor.

Prerequisite: Electrical engineering e3.

NOTE. A deposit of \$10 to cover possible breakage is required of students taking Electrical engineering e4.

Electrical engineering e6—Wireless telegraphy and telephony. 2 points. Professor Morecroft

7:30-9:20 p. m., Wednesday. Fee \$12

Prerequisites: Students wishing to enroll for this course must have had a good training in mathematics, continuous current and alternating current circuits and machines. Enrolment only after personal interview with instructor in charge of course.

For a course in cable telegraphy see special circular.

#### Mechanical Drafting

\*Drafting e2—Mechanical drafting.¹ 6 hours' lecture and drafting-room work per week. Credit Ic, V. 2 points. Professor HARRINGTON and assistant 7:20-10 p. m., Tuesday and Friday. Fee \$12

Drafting e2a—Mechanical drafting. 6 hours' lecture and drafting-room work per week. Credit Ic, V. 2 points. Professor HARRINGTON and assistant 7:20-10 p. m., Tuesday and Friday. Fee \$12

Drafting er repeated in the Spring Session for students entering in February.

\* Drafting e4—Descriptive geometry. 2 hours' lectures per week. Credit Ic, V. 2 points. Professor HARRINGTON

6:30-7:20 p. m., Tuesday and Friday. Fee \$12

Drafting e6—Graphics.<sup>1</sup> 3 hours' drafting-room work per week. I point. Professor Harrington

7:20-10 p. m., Tuesday or Friday. Fee \$6

Prerequisites: Elements of mechanical drafting and descriptive geometry.

Drafting e8—Structural drafting. 3 hours' drafting-room work per week. I point. Professor HARRINGTON

7:20-10 p. m., Tuesday or Friday. Fee \$6

Prerequisite: Elements of mechanical drafting.

Drafting e8a—Structural drafting. 6 hours' drafting-room work per week. 2 points. Professor HARRINGTON

7:20-10 p. m., Tuesday and Friday. Fee \$12

This course is similar in character to Drafting e8, but covers the ground more thoroughly. Prerequisite: Elements of mechanical drafting.

Drafting e104—Machine elements.<sup>1</sup> 2 hours' lectures and 3 hours' drafting-room work a week. Credit II. 2 points. Mr. TUCKER

7-9 p. m., Monday. Drafting, 7-9:30 p. m., Thursday. Fee \$12

Open only with the consent of the instructor.

Prerequisite: Elements of mechanical drafting.

<sup>&</sup>lt;sup>1</sup>Students will be required to furnish their own drafting instruments and materials.

## Sanitary Engineering

Sanitary engineering eY2—Sanitary design. Lectures. 2 points. Mr. WALKER

7:30-9:10 p. m., Thursday. Fee \$12

Will not be given for less than six students.

#### Structural Mechanics

NOTE. The following courses in structural mechanics are intended only for men engaged in practical work. They do not correspond to day courses and no university credit is allowed for them. For specific courses in architecture, especially in building materials, see pp. 7-9 and 21.

Structural mechanics eX2—Elements and applications of algebra and trigonometry. 2 points. Mr. CLARK

6:10-7 p. m., Monday and Thursday. Fee \$12

Structural mechanics eX4—Elements and applications of geometry, plane and solid. Mensuration. 2 points. Mr. CLARK

7:20-8:10 p. m., Monday and Thursday. Fee \$12

Open only with the consent of the instructor.

Structural mechanics eZ2—Elements of mechanics of materials. 3 points. Professor Burnside

6:10-7 p. m., Tuesday and Thursday. Fee \$18

Continuation of Course eZ1.

Prerequisite: Course eZI.

Structural mechanics eZ4—Designs and details of framed structures.
3 points. Professor Schroeder

7:15-9:45 p. m., Monday and Thursday. Fee \$18

Open only with the consent of the instructor.

Continuation of Course eZ2.

Prerequisites: Mechanical drafting e1-2, Structural mechanics eZ1 and eZ2, or their equivalents.

Structural mechanics eY2—Estimating for building construction. 3 points, Mr. EISLE and Mr. TAUB

7:30-9 p. m., Monday and Thursday. Fee \$18

Open only with the consent of the instructor.

#### **ENGLISH**

## Undergraduate Courses

\*English eA2—English composition. Lectures, themes and conferences. Credit I, IV. 3 points. Fee \$18

Section 1-3:10-4:25 p. m., Monday and Thursday. Dr. Brewster

Section 2-3:10-4:25 p. m., Tuesday and Friday. Mr. Foley

Section 3-3:10-4:25 p. m., Monday and Thursday. Dr. Scarborough

Section 4—4:30-5:45 p. m., Monday and Thursday. Dr. Brewster Section 6—7-8:15 p. m., Monday and Thursday. Dr. Wolff

Section 7-7-8:15 p. m., Tuesday and Friday. Mr. COAD

English eA4—English composition. Lectures, themes and conferences. Credit I, IV, if student has taken Winter Session. 1½ points. Dr. Wolff 9-10:15 a. m., Saturday. Fee \$9

Open only with the consent of the instructor.

English eA8—English composition. Lectures, themes and conferences. Credit I, IV. 3 points. Fee \$18. Mr. CLARK

Section 1-8:20-9:35 p. m., Monday and Thursday

Section 2-3:10-4:25 p. m., Monday and Thursday

Course eAI given in the Spring Session for new students.

English eB2—English literature and composition. Lectures, themes and conferences. Credit I, IV. 2 points. Dr. Wolff

8:45-9:35 p. m., Monday and Thursday. Fee \$12

Open only with the consent of the instructor.

English eB4—Introduction to poetry. Credit I, IV. 3 points. Dr. HALLER 3:10-4:25 p. m., Tuesday and Friday. Fee \$18

Open only with the consent of the instructor.

\* English eB6—Survey of English literature. Credit I, IV. 2 points. Mr. DIBBLE

2:50-4:30 p. m., Monday. Fee \$12

English e2a—English composition. Advanced course. Lectures, themes and theme criticism. Credit I, IV. 1½ points. Dr. Wolff

11 a. m.-12:15 p. m., Saturday. Fee \$9

Open to students who have passed English A with high standing or to special students of maturity, after personal interview with the instructor.

English e2b—The short story. English composition. Theory of fiction writing. Lectures, themes and criticism. 3 points. Fee \$18. Miss Hull

Section 1-3:10-4:25 p. m., Wednesday

Section 2-7-8:15 p. m., Wednesday

Open only with the consent of the instructor.

English e2c—The short story. Advanced course. English composition. Theory of fiction writing. 4 points. Fee \$24

Section 1—9:30-10:45 a. m., Saturday. Professor Blanche C. Williams Section 2—8:20-9:35 p. m., Wednesday. Dr. Scarborough

Open only with the consent of the instructors.

A continuation of English e1b-2b.

\*English e2d—The short story. Second advanced course. 4 points. Fee \$24 Section I—II a. m.-I2:I5 p. m., Saturday. Professor BLANCHE C. WILLIAMS Section 2—8:20-9:35 p. m., Thursday. Dr. SCARBOROUGH

Each section is limited to thirty. Students should consult the instructor at the regular class hour before registration.

English e4a—Dramatic composition. 3 points. Fee \$18. Dr. W. M. PATTERSON

Section 1—11:10 a. m.-12:25 p. m., Saturday

Section 2—8:20-9:35 p. m., Friday

Open only with the consent of the instructors.

English e6a—History and theory of literary criticism. 3 points. Dr. Wolff

4-5:40 p. m., Thursday. Fee \$18

Open only with the consent of the instructor.

English e10—Advanced course in oral reading. Credit I, IV. 2 points. Professor Tassin

4:10-5:40 p. m., Friday. Fee \$12

Open only with the consent of the instructor.

English e12a—Public speaking. Credit I, IV. 2 points. Fee \$12. Mr. HALLIDAY

Section 1-7:30-9:10 p. m., Wednesday

Section 2-7:30-9:10 p. m., Friday

Open only with the consent of the instructor.

- \* English e14—Elocution. Credit I, IV. 2 points. Fee \$12. Mrs. Davis Section 1—9:20-11 a. m., Saturday Section 2—4-5:40 p. m., Wednesday
- \*English e16—English prosody. Elementary course. 2 points. Mr. Hooker

8:20-10 p. m., Thursday. Fee \$12

English e16a—English prosody. Advanced course. 4 points. Mr. Hooker 2-3:40 p. m., Wednesday. Fee \$24

Open only with the consent of the instructor.

English e18—Modern literature, English and foreign. Credit I, IV. 2 points. Professor Steeves

7:25-8:15 p. m., Monday and Thursday. Fee \$12

Open only with the consent of the instructor.

English e20—The history of American literature. Credit I, IV. 2 points. Professor Tucker

4:10-5:50 p. m., Monday. Fee \$12

English e22—English literature from 1780-1830. Credit I, IV. 2 points. Professor Patterson

4:45-6:25 p. m., Wednesday. Fee \$12

Open only with the consent of the instructor.

English e24—English literature from 1830-1890. Credit I, IV. 2 points. Dr. Fansler

7:30-9:10 p. m., Wednesday. Fee \$12

English e36a—Shakspere. Credit I, IV. 2 points. Professor TASSIN II a. m.-12:40 p. m., Saturday. Fee \$12

English e40—The English novel. Credit I, IV. 2 points. Dr. Brewster II a. m.-12:40 p. m., Saturday. Fee \$12

Open only with the consent of the instructor.

English e42a—Contemporary dramatic literature. 2 points. Mr. CLAYTON HAMILTON

10-11:40 a. m., Saturday. Fee \$12

#### Comparative Literature

Comparative literature e4—Masterpieces of European literature. Credit I, IV. 3 points. Mr. Lyon

4:45-6:25 p. m., Tuesday. Fee \$18

For courses in contemporary literature see p. 14

#### Graduate Courses

For students who have already received the bachelor's degree, these courses may be credited towards the higher degrees.

English e208—History of the English language. Credit II. 3 points. Professor Krapp

11 a. m.-12:40 p. m., Saturday. Fee \$18

English e234—English literature in the eighteenth century. Credit II. 3 points. Professor Trent

5:10-6 p. m., Tuesday and Friday. Fee \$18

English e238—English literature, 1832-1880. Credit II. 3 points. Professor Thorndike

5:10-6 p. m., Monday and Wednesday. Fee \$18

## Preparatory Courses

English eV2—Elementary English. 2 points. Miss DILLER 5-5:50 p. m., Wednesday and Friday. Fee \$12

English eW2—English grammar and composition. 3 points. Fee \$18. Mr. Duncan

Section 1—1:45-3 p. m., Monday and Thursday Section 2—7-8:15 p. m., Monday and Thursday

English eW4—English grammar. 3 points. Mr. Duncan 8:20-9:35 p. m., Monday and Thursday. Fee \$18

Course eWI repeated in the Spring Session.

English eX2—College entrance English. Composition and reading. Themes, conferences, reading of texts, tests, lectures, special oral reports, discussions. 3 points. Mr. Duncan

3:10-4:25 p. m., Monday and Thursday. Fee \$18

Open only with the consent of the instructor.

English eX4—College entrance English. 3 points. Dr. Gaston 7-8:15 p. m., Monday and Thursday. Fee \$18

Course eXI repeated in the Spring Session.

\* English eY2—College entrance English. Composition and study of texts. Themes, tests, lectures and discussions. 3 points. Fee \$18

Section 1-3:10-4:25 p. m., Tuesday and Friday. Mr. Duncan

Section 2-7-9:30 p. m., Tuesday. Mr. PECK

Prerequisite: English eXI-X2 or its equivalent (the third year of high school course).

English eY4—College entrance English. 3 points. Mr. PECK

7:30-10 p. m., Wednesday. Fee \$18

Course eYr repeated in the Spring Session.

English eZ2-English spelling. I point. Fee \$6. Mr. DUNCAN

Section 1-4:30-5:20 p. m., Wednesday and Friday

Section 2-6:10-7 p. m., Monday and Thursday

Business English e2—Business English and commercial correspondence. 3 points. Fee \$18. Mr. Duncan

Section 1-2-3 p. m., Tuesday and Friday

Section 2-7:30-9:20 p. m., Wednesday

Section 3-7:30-9:20 p. m., Tuesday

A prerequisite to this course is a knowledge of the principles of elementary English grammar. Open only with the consent of the instructor.

#### FINE ARTS

Architecture e28—Medieval architecture. Credit I. 2 points. Mr. Hopkins 4:10-5 p. m., Tuesday and Thursday. Fee \$12

' Will not be given for less than ten students.

Architecture e32—Ancient ornament. Credit I, V. 1 point. Mr. Hamlin 6-6:50 p. m., Friday. Fee \$6

No credit will be given for Architecture e32 unless taken with one other course.

Architecture e34—Medieval ornament. Credit I, V. 1 point. Mr. Hamlin 6-6:50 p. m., Tuesday. Fee \$6

No credit will be given for Architecture e34 unless taken with one other course.

Fine arts e52a—The paintings of the Metropolitan Museum of Art. A study of the originals in the Museum, including the Altman and Vanderbilt collections. 2 points. Fee \$12. Dr. Kriehn

Section 1-2:30-4:10 p. m., Friday, Metropolitan Museum

Section 2—10:30 a. m.-12:10 p. m., Saturday, Metropolitan Museum

Section 3-8:15-9:55 p. m., Saturday, Metropolitan Museum

Section 4—10:30 a. m.-12:10 p. m., Monday, Metropolitan Museum. Begins February 19

Section 4 will be given only if the other sections are filled.

Fine arts e54—Outlines of art history. 2 points. Dr. Kriehn 3:10-4:25 p. m., Monday. Fee \$12

#### GEOGRAPHY

Geography e26—Physical geography of the lands. Lectures and laboratory work. Credit I, IV. 3 points. Mr. Morris 8:20-9:50 p. m., Monday and Thursday. Fee \$18

#### **GEOLOGY**

Geology e2—Historical geology. The origin of the earth and its development—succession of plant and animal life. Lectures and laboratory. Credit I, IV. 3 points. Dr. GALLOWAY

8:20-10 p. m., Tuesday and Friday. Fee \$18

Prerequisite: Geology 1 or Geology e1 or s1.

#### **GERMAN**

German eA2—Elementary course. Credit I, IV. 4 points. Fee \$24 Section I—4:30-5:55 p. m., Tuesday, Wednesday, and Friday. Dr. Вöнмв Section 3 limited to men matriculated in Columbia College.

Section 3—1:10-2 p. m., Monday, Tuesday, Wednesday, Thursday, and Friday. Professor Heuser

\* German eA4—Elementary course, first half. Equivalent to Course eA1. Credit I, IV. 2 points. Mr. BACH

9-11 a. m., Saturday. Fee \$12

Prerequisite to German eA4: eA3 or sA1. For Course eA3 no previous knowledge of German is required.

German eA8—Elementary course. Credit I, IV. 4 points. Mr. Gray 4:30-5:55 p. m., Tuesday, Wednesday, and Friday. Fee \$24

\* German eA12—Shorter elementary course. Credit I, IV. 3 points. Dr. Вöнме

7-8:15 p. m., Monday and Thursday. Fee \$18

German eA14—Shorter elementary course. Credit I, IV. 3 points. Dr. Вöнме

8:30-9:45 p. m., Tuesday and Friday. Fee \$18

A course for beginners. German eAI repeated in the Spring Session.

Equivalent to German eA11, but given in the Spring Session for students who enter at that time.

German eB2—Intermediate course. Credit I, IV. 4 points. Mr. Scholz 4:30-5:55 p. m., Tuesday, Wednesday, and Friday. Fee \$24

Prerequisite: Elementary entrance, German eA2, eA5-A6, or sA3 or an equivalent.

German eB4—Intermediate course, first half. Equivalent to German eB1. Credit I, IV. 2 points. Dr. Вöнме

9-11 a. m., Saturday. Fee \$12.

This course is equivalent to German eB1. Open to students who have completed eB3 or an equivalent.

\* German eB12—Shorter intermediate course. Credit I, IV. 3 points. Dr. BÖHME

8:30-9:45 p. m., Monday and Thursday. Fee \$18

Prerequisite: as for German eB1-B2.

\* German eB14—Shorter intermediate course. Credit I, IV. 3 points. Professor Schulze

4:30-5:45 p. m., Tuesday and Friday. Fee \$18

Equivalent to German eB11.

German eE2—Readings in science. Credit I. 3 points. Mr. Scholz 7–8:15 p. m., Monday and Thursday. Fee \$18

Open only with the consent of the instructor.

Prerequisite: Course eE1.

German eE4—Readings in science. Credit I. 3 points. Mr. Scholz 4:30-5:45 p. m., Monday and Thursday. Fee \$18

Equivalent to Course eE1.

Prerequisite: as for Course eE1.

\*German eJ2—Readings in newspapers and magazines. Credit I, IV. 3 points. Dr. Вöнме

7-8:15 p. m., Tuesday and Friday. Fee \$18

Prerequisite: Intermediate entrance, German eB2, or an equivalent.

German e4—Composition and oral practice. Intermediate course. Credit I, IV. 1½ points. Mr. BACH

11:15 a. m.-12:30 p. m., Saturday. Fee \$9

Open only with the consent of the instructor.

German e6a—Introduction to the classics. Selected works of Goethe, Schiller and Lessing. Credit I, IV. 2 points. Professor HERVEY

3:20-5 p. m., Wednesday. Fee \$12

Prerequisite: Course eB2, or an equivalent.

Open only with the consent of the instructor.

German e12—Composition and oral practice. Advanced course. Credit I, IV. 1½ points. Dr. BÖHME

11:15 a. m.-12:30 p. m., Saturday. Fee \$9

Open only with the consent of the instructor.

German e102—History of German literature. From 1500 to 1800 A.D. Credit II. 2 points. Professor Braun

9-10:40 a. m., Saturday. Fee \$12

Open to students who have completed Course e5a-6a or an equivalent.

German e104—Goethe's Faust. First and second parts. Credit II. 3 points, Professor THOMAS

9-10:40 a. m., Saturday. Fee \$18

Open only with the consent of the instructor.

Prerequisite: Course e5a-6a or an equivalent reading knowledge of German.

The attention of students in German is called to the evening classes in Spoken language, described in a special circular.

#### GREEK

Greek e2—Xenophon and sight translation. Credit I, IV. 3 points. Professor Relley

4:30-6 p. m., Monday and Thursday. Fee \$18

Prerequisite: Greek er or its equivalent.

#### HISTORY

History eX2—American history. Texts, discussions, readings, notes, maps. 3 points. Fee \$18

Section I—II a. m.-12:15 p. m., Tuesday and Friday. Mr. FLOURNOY Section 2—7-8:15 p. m., Monday and Thursday. Mr. ARNETT Course eXI repeated in the Spring Session.

History eX4—Ancient history. Texts, discussions, readings, notes, maps. 3 points. Mr. FLOURNOY

4:30-5:45 p. m., Tuesday and Friday. Fee \$18 Course eX3 repeated in the Spring Session.

History eA2—Modern and contemporary history. Lectures, readings and discussions. Credit I, IV. 3 points. Fee \$18

Section I—4:30-5:45 p. m., Monday and Thursday. Professor KENDRICK Section 2—8:20-9:35 p. m., Tuesday and Friday. Dr. EVANS

History eA4—The foundations of modern Europe. Lectures, readings and discussions. Credit I, IV. 3 points. Fee \$18

Section 1—4:30-5:45 p. m., Monday and Thursday. Dr. W. T. Morgan Section 2—7-8:15 p. m., Tuesday and Friday. Mr. Arnett Course eAr repeated in the Spring Session.

History eA10—The development of American nationality. Lectures, readings and discussions. Credit I, IV. 3 points. Mr. Fox 7-8:15 p. m., Monday and Thursday. Fee \$18

History e12—The history of England. Lectures, readings and discussions. Credit I, IV. 2 points. Professor Schuyler
11 a. m.-12:40 p. m., Saturday. Fee \$12

History e20—Contemporary events. A laboratory course. Lectures, conferences and reports. Credit I, IV. 2 points. Professor SCHAPIRO 2:45-4:25 p. m., Thursday. Fee \$12

History e110—The Hebrew people. Lecture-study course. Credit II. 3 points. Professor Rogers

11 a. m.-12:40 p. m., Saturday. Fee \$18

History e126—History of the Balkan States, and of Poland and other non-Russian Slavonic areas. Lecture-study course. Credit II. 3 points. Professor PRINCE

4-4:50 p. m., lecture; 4:50-5:40 p. m., conference, Wednesday. Fee \$18

History e150—The development of modern France. Lecture-study course. Credit II. 3 points. Professor Muzzey

11 a. m.-12:40 p. m., Saturday. Fee \$18

History e154—European political history since 1879. Credit II. 3 points. Professor Hayes

4:10-5:50 p. m., Monday. Fee \$18

History e178—Latin America: industry; transportation; commerce. Credit II, IX. 3 points. Professor Shepherd

7:30-9:10 p. m., Monday. Fee \$18

Open only with the consent of the instructor.

For a course in the history of the Eastern question, see p. 35.

#### INTERNATIONAL LAW

See also Politics, p. 31

International law e2—Latin-American diplomacy. A general outline of the origin, history and present status of, and in, the Latin-American Republics. 2 points. Sr. Godoy

7:40-9:20 p. m., Wednesday. Fee \$12

International law e4—The consular service in Latin America. A general outline of the duties and powers of consular officials in the Latin-American Republics and information regarding those countries useful to such officials. 2 points. Sr. Godov

7:40-9:20 p. m., Thursday. Fee \$12

International law e104—Principles and practice of international law. Lecture-study course. Credit II, IV. 3 points. Professor Stowell

4:30-6:10 p. m., Thursday. Fee \$18

Open only with the consent of the instructor.

## International Relations

International relations e102—History and growth of international relations. Lecture-study course. Credit II. 3 points. Mr. Munro

7:40-9:20 p. m., Monday. Fee \$18

International law e120—Modern European and American diplomacy. Credit II, IV, 3 points. Mr. Munro

7:40-9:20 p. m., Wednesday. Fee \$18

International law e122—History of American diplomacy. Credit II. 3 points. Mr. Munro

11-11:50 a. m., Monday and Tuesday. Fee \$18

## JEWISH COMMUNAL WORK

Economics eX2—Problems of correctional work among the Jews. 2 points. Mr. Kaminsky

7:45-9:25 p. m., Thursday. Fee \$12

Economics e106—The labor problem among the Jews. Credit II. 3 points. Dr. Abelson

4:30-6:10 p. m., Monday. Fee \$18

#### LATIN

Latin e6—Collegiate Latin. Catullus; Livy (selections). Credit I, IV. 3 points. Professor Guernsey

4:30-5:45 p. m., Monday and Thursday. Fee \$18

Latin eX2—Elementary Latin and Cæsar. Credit I in Columbia College; IV. 3 points. Miss WyE

8:20-9:50 p. m., Tuesday and Friday. Fee \$18

Latin eX8—Elementary course. Credit I in Columbia College if offered in conjunction with Latin eX2 or eX3; IV. 3 points. Miss McClees

4:30-5:45 p. m., Tuesday and Friday. Fee \$18

A course for beginners.

Latin eY4—Cicero and Sallust. Credit I in Columbia College; IV, if offered in conjunction with Latin eY5 or eY6. 3 points. Miss McClees 4:30-6 p. m., Monday and Thursday. Fee \$18

Latin eY6—Latin prose composition. Credit I in Columbia College; IV, if offered in conjunction with Latin eY3 or eY4. 2 points. Miss WYE

2:10-3 p. m., Tuesday and Thursday. Fee \$12

Latin eY5 repeated in the Spring Session.

Latin eY8—Ovid and Vergil. Credit I in Columbia College; IV. 3 points. Fee \$18

Section 1-4:30-6 p. m., Tuesday and Friday. Miss WyE

Section 2-7-8:30 p. m., Monday and Thursday. Professor Relley

Section I is a Direct Method reading course.

Latin eYI repeated in the Spring Session.

#### LAW

Law eX2—Nature and functions of law. Credit I, IV. 2 points. Miss WITTE

4:30-6:10 p. m., Monday. Fee \$12

#### LIBRARY ECONOMY

The courses in library economy when supplemented by certain cultural classes form a full year's work. On the completion of the work a formal statement is given to students who have satisfied the entrance requirements. Full information is contained in a special bulletin which will be mailed upon request.

All courses in library economy are under the direction of Miss Helen Rex Keller with whom students should consult about arranging their programs. Her office hours are 11:30 a.m.-12 m., Monday, Wednesday and Friday in Room 301 University Hall.

Library economy e2—Bibliography. 2 points. Miss Keller

10-10:50 a. m., Friday. Fee \$12

Library economy e4—Cataloguing and classification. 2 points. Miss

9 a. m.-12:30 p. m., Tuesday and Thursday. Fee \$12

Open only with the consent of the instructor.

<sup>1</sup> To secure this credit all three courses, Latin eV1 or eV8, eV3 or eV4, and eV5 or eV6, or their equivalents in the Summer Session, must be offered.

Library economy e6—Library administration. Seminar. 2 points. Miss Keller

10-10:50 a. m., Wednesday. Fee \$12

Open only with the consent of the instructor.

Library economy e8—Children's work. Advanced course. 1 point. Fee \$6. Mrs. Gould

10-10:50 a. m., Saturday

A continuation of Library economy e7.

Library economy e22—Indexing, filing and cataloguing as applied in business. 2 points. Miss Hull

7:45-9:45 p. m., Wednesday. Fee \$12

Library economy e21 repeated in the Spring Session.

#### **MATHEMATICS**

Mathematics eX2—Algebra, elementary and intermediate course (complete). 4 points. Dr. Hollcroft

7:25-8:15 p. m., Monday, Tuesday, Thursday, and Friday. Fee \$24 Course eX1 repeated in the Spring Session.

Mathematics eX4—Algebra, elementary course. 3 points. Dr. RITT 8:20-9:35 p. m., Monday and Thursday. Fee \$18

Mathematics eX3 repeated in the Spring Session.

Mathematics eX6—Algebra, intermediate course. 3 points. Mr. Bird 7-8:15 p. m., Monday and Thursday. Fee \$18

Mathematics eX5 repeated in the Spring Session.

Mathematics eY2—Plane geometry. 4 points. Dr. Hollcroft 6:10-7 p. m., Monday, Tuesday, Thursday, and Friday. Fee \$24 Mathematics eY1 repeated in the Spring Session.

Mathematics eA2—Solid geometry. Credit I, IV. 3 points. Mr. SWENSEN 7-8:15 p. m., Monday and Thursday. Fee \$18
Mathematics eA3 repeated in the Spring Session.

Mathematics eA4—Trigonometry. Credit I, IV. 2 points. Professor McClenon

8:20-9:10 p. m., Monday and Thursday. Fee \$12

Mathematics eAr repeated in the Spring Session.

Mathematics e2—Algebra. Credit I, IV. 3 points. Professor McClenon 7-8:15 p. m., Monday and Thursday. Fee \$18

Mathematics er repeated in the Spring Session.

Mathematics e4—Analytical geometry. Credit I, IV. 3 points. Professor McClenon

7-8:15 p. m., Monday and Thursday. Fee \$18

Mathematics e3 repeated in the Spring Session.

Mathematics e22—Differential equations. Credit I, IV. 3 points. Dr. Ritt

7-8:15 p. m., Monday and Thursday. Fee \$18

\* Mathematics e76—Calculus. Credit I, IV. 4 points. Dr. Mullins 6:35-8:15 p. m., Tuesday and Friday. Fee \$24

Mathematics e78—Calculus. Credit I, IV. 4 points. Dr. Hollcroft 8:20-10 p. m., Monday and Thursday. Fee \$24

Mathematics e75 repeated in the Spring Session.

#### MUSIC

Music eX2-University Chorus. Professor Walter Henry Hall

8:15-9:45 p. m., Monday. Fee for University students expecting credit \$6, otherwise no charge, excepting for music used. Credit I. I point with special arrangement if taken in conjunction with another course in music

Music eY2—University Choir. Professor Walter Henry Hall 7:45-9:30 p.m., Thursday

Music e6—Elementary ear training and dictation. Credit IV. 2 points. Mr. Manning

4:10-5:50 p. m., Tuesday. Fee \$12

Identical with Music e5 but given in the Spring Session.

\* Music e6a—Advanced ear training and dictation. Credit IV. 2 points. Mr. Manning

4:10-5:50 p. m., Friday. Fee \$12

A theoretic knowledge of harmony is required.

\* Music e8—Elementary harmony. Credit I, IV. 2 points. Mr. WARD 4:10-5:50 p. m., Monday. Fee \$12

A knowledge of notation and ability to play simple exercises on the piano are required for admission.

Music e8a—Elementary harmony. Credit I, IV. 2 points. Mr. Ward 1:10-2:50 p. m., Saturday. Fee \$12

Music e7 repeated in the Spring Session.

\* Music e10—Advanced harmony and elementary form. Credit I, IV. 2 points. Mr. WARD

4:10-5:50 p. m., Saturday. Fee \$12

A continuation of course e8.

Music e54—Introductory harmony. Credit I, IV. 2 points. Mr. Kraft II a. m.-I2:40 p. m., Saturday. Fee \$12

Open only with the consent of the instructor.

Music e56—Sight singing. Credit IV. 2 points. Mr. Kraft 9–10:40 a. m., Saturday. Fee \$12

Open only with the consent of the instructor.

#### NEUROLOGY

\*Neurology e224—Neuro-anatomy. The anatomy, histology, development and architectonics of the nervous system of man. Followed by a comparative study of the nervous system of the vertebrates. Lectures, demonstrations, conferences, and laboratory work. Credit II, VI. 3 points. Professor TILNEY, Mr. ELWYN, and Mr. DEFREM

7-10 p. m., Friday. Neurologic Laboratory, College of Physicians and Surgeons, 437 West 59th Street. Fee \$18

Neurology e226—Neuro-histology and its technique. Credit II, VI. 2 points. Professor Strong

9:30 a. m.-12 m., Saturday. Neurologic Laboratory, College of Physicians and Surgeons, 437 West 59th Street. Fee \$12

Open only with the consent of the instructor.

#### PENMANSHIP

Penmanship e2—Practical course. 2 points. Mr. C. G. PRINCE 4:30-5:45 p. m., Tuesday and Friday. Fee \$12
Penmanship ex repeated in the Spring Session.

#### **PHILOSOPHY**

Philosophy eA2—Principles of science: concepts and problems of philosophy. Lectures, recitations, and individual consultations with the instructor. Credit I, IV. 3 points. Mr. Coss

8:20-9:35 p. m., Tuesday and Friday. Fee \$18

Philosophy eA4—Principles of science: methods, deductive and inductive logic. Credit I, IV. 3 points. Dr. OWEN

4:30-5:45 p. m., Tuesday and Friday. Fee \$18

Course eAr repeated in the Spring Session for students entering at that time.

Philosophy e22—Ethical ideals, past and present. Credit I, IV. 2 points. Dr. Cooley

4:10-5:50 p. m., Wednesday. Fee \$12

\* Philosophy e136—Radical, conservative, and reactionary tendencies in present-day morals. Credit II. 3 points. Professor Montague

7:40-9:30 p. m., Friday. Fee \$18

Philosophy e162—History of philosophy. Credit I, IV, 2 points; Credit II, 3 points. Dr. Cooley

4:10-5:50 p. m., Friday. Fee \$12 or \$18

#### PHONETICS

Phonetics e2—Phonetics and pronunciation. 2 points. Mr. William Tilly

4:30-6:10 p. m., Friday. Fee \$12

English pronunciation will be the chief subject; French, German and Spanish sounds will be treated incidentally. The course will be practical and adapted to the needs of teachers in schools and colleges. It is a foundation course for more advanced work in phonetics.

#### PHOTOPLAY COMPOSITION

Photoplay composition e2—Elementary course. 3 points. Fee \$18. Mrs. F. T. Patterson

Section 1-3:10-4:25 p. m., Tuesday

Section 2-7:10-8:25 p. m., Wednesday

Identical with Photoplay composition er.

Photoplay composition e4—Intermediate course. 3 points. Fee \$18. Mrs. F. T. Patterson

Section 1-3:10-4:25 p. m., Thursday

Section 2-8:30-9:45 p. m., Wednesday

Identical with Photoplay composition e3.

Photoplay composition e6—Advanced course. 4 points. Mrs. F. T. PATTERSON

3:10-4:25 p. m., Monday. Fee \$24

#### PHYSICAL EDUCATION

(For men students only)

Physical education eA2—Gymnastics and games. Credit I, IV. 2 points. Professor Elliott

8:30-9:20 p. m., Monday, Wednesday, and Thursday. Fee \$12

Physical education eW2—Wrestling. 2 points. Fee \$12. Mr. PETERSON

Section 1-7:30-8:30 p. m., Thursday

Section 2-8:30-9:30 p. m., Thursday

Physical education eY2—Swimming. 2 points. Fee \$12. Mr. KENNEDY

Section 1-Monday, 8:30-9 or 9-9:30 p. m.

Section 2—Thursday, 8:30-9 or 9-9:30 p. m.

Section 3-Saturday, 8:30-9 or 9-9:30 p. m.

Students may receive instruction on either Monday, Thursday, or Saturday and will have the privilege of using the swimming pool on the remaining evenings.

Physical education eZ2—Boxing. 2 points. Fee \$12. Mr. WEEMAN

Section I-Thursday, 7:30-8:30 p. m.

Section 2—Thursday, 8:30-9:30 p. m.

Students have the privilege of using the gymnasium and swimming pool Monday, Thursday and Saturday evenings from 7 to 10 o'clock.

#### PHYSICS

\*Physics eA2—Elementary course in general physics. 3 hours' lectures and recitations, with 2 hours' laboratory work a week. Credit I, IV. 4 points. Fee \$24

Lectures, 7:30-9 p. m., Monday and Thursday. The laboratory work is done in sections of twelve students each, the number of sections and the hours of meeting depending upon the number registering for the course. In the Winter Session of 1917-1918, the sections met as follows:

Section 1-Monday, 5:30-7:30 p. m. Mr. STEMPEL

Section 2-Monday, 9-11 p. m. Mr. STEMPEL

Section 3-Wednesday, 4-6 p. m. Mr. Brown

Section 4-Thursday, 9-11 p. m. Mr. STEMPEL

In assigning students to laboratory sections, preference will be given to those who register first.

Open only with the consent of the instructors.

#### **POLITICS**

Politics e2—American government. Credit I, IV. 3 points. Fee \$18. Mr. Boots

4:30-5:45 p. m., Monday and Thursday

Politics e106—American city government. Credit II. 3 points. Professor McBain

4:30-6:10 p. m., Tuesday. Fee \$18

Politics e108—Comparative government and politics. Credit II. 3 points. Professor Sait

11 a. m.-12:40 p. m., Saturday. Fee \$18

Politics e118—Political constitution of Mexico. Credit II. 3 points. Mr. Obregon

7:40-9:30 p. m., Wednesday. Fee \$18

#### PRACTICAL OPTICS

The University offers a two years' course in practical optics for students of optometry. A special circular describing these classes will be sent on application to the Secretary of the University.

#### **PSYCHOLOGY**

Psychology e2—Elements of psychology. Lectures, demonstrations, discussions and recitations. Credit I, IV. 3 points. Fee \$18. Dr. POFFENBERGER

Section 1-4:30-5:45 p. m., Tuesday and Friday

Section 2-7-8:15 p. m , Tuesday and Friday

Section 3-8:20-9:35 p.m., Tuesday and Friday

Open only with the consent of the instructor.

Psychology e6—Psychology for nurses and social workers. Lectures and discussions. Credit IV. 2 points. Miss ROMER

8-9:40 p. m., Tuesday. Fee \$12

Additional sections may be arranged in any locality for groups of twenty or more.

Psychology e146—Applications of psychology. Lectures, demonstrations and discussions. Credit II. 3 points. Professor Hollingworth

4:10-5:50 p. m., Wednesday. Fee \$18

Psychology e166—Social psychology. Lectures, discussions and readings. Credit II. 3 points. Professor Woodworth

6:40-8:20 p. m., Tuesday. Fee \$18

Prerequisite: Psychology e1-2 or an equivalent.

Business e118—Psychology of advertising and selling. Credit II, IX. 3 points. Fee \$18. Professor HOLLINGWORTH

Section 1-7:40-9:20 p. m., Monday

Section 2-7:40-9:20 p. m., Thursday

New students should consult the instructor before registering for this course.

#### RELIGION AND RELIGIOUS EDUCATION

Religion e6—The religious education of children. Designed for parents and teachers. I point. Mrs. MERRETT 4:10-5 p. m., Friday. Fee \$6

#### ROMANCE LANGUAGES

All the undergraduate courses in Romance languages in Extension Teaching are under the general supervision of Professor Loiseaux; office hours, 4:15 p. m., Tuesday and Friday, Room 201 East Hall

#### French

\* French eA2—Elementary course. Credit I, IV. 4 points. Fee \$24
Section 1—4:30-5:55 p. m., Tuesday, Wednesday, and Friday. Mr. FERRARU
Section 2—8:30-9:55 p. m., Monday, Wednesday, and Thursday. Mr. FERRARU
College sections 3 and 4 limited to men matriculated in Columbia College.

Section 3—II-II:50 a.m., Monday, Tuesday, Wednesday, Thursday, and Friday. Mr. A. P. Moore

Section 4—1:10-2 p. m., Monday, Tuesday, Wednesday, Thursday, and Friday. Mr. Wilkinson

Section 5-3-4:25 p. m., Tuesday, Wednesday, and Friday. Mr. FERRARU

- \* French eA4—Elementary course. Credit I, IV. 1½ points. Mr. SWANN 9:30-10:45 a. m., Saturday. Fee \$9
  Equivalent to Course eA11.
- \* French eA6—Elementary course. Credit I, IV. 1½ points. Mr. SWANN II a. m.-12:15 p. m., Saturday. Fee \$9
  Equivalent to French eA12.

French eA8—Elementary course. Credit I, IV. 4 points. Dr. MANTZ 4:30-5:55 p. m., Tuesday, Wednesday, and Friday. Fee \$24 Equivalent to French eA1. A course for beginners.

\* French eA12—Shorter elementary course. Credit I, IV. 3 points. Fee \$18

Section 1—4:30-5:45 p. m., Tuesday and Friday. Dr. ALEXANDER Section 2—7-8:15 p. m., Monday and Thursday. Dr. CLARK Section 3—4:30-5:45 p. m., Monday and Thursday. Dr. ALEXANDER

\* French eA14—Shorter elementary course. Credit I, IV. 3 points. Mr. SWANN

7-8:15 p. m., Tuesday and Friday. Fee \$18 Equivalent to French eA11.

\* French eB2—Intermediate course—grammar, reading and composition. Credit I, IV. 4 points. Fee \$24. Mr. OLINGER

Section 1—4:30-5:55 p. m., Monday, Wednesday, and Thursday Section 2—2:30-3:55 p. m., Monday, Wednesday, and Thursday

\*French eB4—Intermediate course—grammar, reading and composition. Credit I, IV. 1½ points. Dr. Mantz

12:15-1:30 p. m., Saturday. Fee \$9

Equivalent to French eBII.

\* French eB6—Intermediate course. Credit I, IV. 1½ points. Dr. Mantz 2-3:15 p. m., Saturday. Fee \$9
Equivalent to French eB12.

French eB8—Intermediate course—grammar, reading and composition. Credit I, IV. 4 points. Dr. CLARK

4:30-5:55 p. m., Tuesday, Wednesday, and Friday. Fee \$24 Equivalent to French eBr.

\*French eB12—Shorter intermediate course. Credit I, IV. 3 points. Fee \$18

Section 1—4:30-5:45 p. m., Monday and Thursday. Professor Spiers Section 2—7-8:15 p. m., Monday and Thursday. Mr. Ferraru

\* French eB14—Shorter intermediate course. Credit I, IV. 3 points. Dr. Mantz

7-8:15 p. m., Tuesday and Friday. Fee \$18 Equivalent to French eB11.

French e4—Practical course and introduction to French literature. Composition, readings and lectures. Credit I, IV. 3 points. Professor FORTIER 4:30-5:45 p. m., Tuesday and Friday. Fee \$18

French e6—General survey of French literature in the seventeenth century. Credit I, IV. 3 points. Professor LOISEAUX

4:30-5:45 p. m., Tuesday and Friday. Fee \$18

Open only with the consent of the instructor.

French e10—Advanced composition and practice in speaking French. Credit I, IV. 3 points. Fee \$18. Professor Fortier

Section 1-4:30-5:45 p. m., Monday and Thursday

Section 2—1:50-3:05 p. m., Tuesday and Thursday

Open only with the consent of the instructor.

#### Italian

- \* Italian e2—Elementary course. Credit I, IV. 3 points. Mr. BIGONGIARI 7-8:15 p. m., Monday and Thursday. Fee \$18
- \* Italian e4—Advanced course. Credit I, IV. 3 points. Mr. BIGONGIARI 7–8:15 p. m., Tuesday and Friday. Fee \$18

## Portuguese

\* Portuguese e2—Elementary course. Credit I, IV. 3 points. Fee \$18. Mr. Bruce

Section 1-7:15-8:30 p. m., Tuesday and Friday

Section 2-5-6:40 p. m., Monday. 203 Broadway, near Fulton Street, Room 412

\*Portuguese e4—Advanced course. Credit I, IV. 3 points. Mr. BRUCE 8:20-9:35 p. m., Tuesday and Friday. Fee \$18

## Spanish

- \*Spanish e2—Elementary course. Credit I, IV. 3 points. Fee \$18 Section 1—3:10-4:25 p. m., Monday and Thursday. Mr. Imbert Section 2—3:10-4:25 p. m., Monday and Thursday. Mr. Agramonte Section 3—3:10-4:25 p. m., Tuesday and Friday. Mr. Russell Section 4—4:30-5:45 p. m., Tuesday and Friday. Mr. Agramonte Section 5—4:30-5:45 p. m., Tuesday and Friday. Mr. Torres Section 6—7-8:15 p. m., Tuesday and Friday. Mr. Torres Section 7—7:30-8:45 p. m., Monday and Thursday. Mr. WILKINS Section 8—6:10-7:25 p. m., Tuesday and Friday. Mr. Mercado Section 9—3:10-4:25 p. m., Monday and Thursday. Mr. Vaeth Section 10—8:30-9:45 a. m., Tuesday and Friday. Mr. Russell
- \* Spanish e4—Advanced course. Credit I, IV. 3 points. Fee \$18 Section I—4:30-5:45 p.m., Monday and Thursday. Professor GERIG Section 3—7-8:15 p.m., Monday and Thursday. Mr. RUSSELL

Spanish e4a—Advanced course. Credit I, IV. 3 points. Mr. WILKINS 8:45-10 p. m., Monday and Thursday. Fee \$18

For students who have had approximately two years of Spanish. Spanish e5 given in the Spring Session.

Spanish e6—Practical course and introduction to Spanish literature. Credit I, IV. 3 points. Mr. IMBERT

4:30-5:45 p. m., Tuesday and Friday. Fee \$18

Spanish e8—Elementary course. Credit I, IV. 3 points. Fee \$18 Section 1—4:30-5:45 p. m., Monday and Thursday. Dr. CLARK Section 2—6:10-7:25 p. m., Monday and Thursday. Mr. WILKINS A course for students who have no knowledge of Spanish.

\* Spanish e12—Elementary course. Credit I, IV. 2 points. Mr. WILKINS 3:10-4:50 p. m., Saturday. Fee \$12
Continuation of ext.

Spanish e14—Advanced course. Credit I, IV. 2 points. Mr. Wilkins 1:30–3:10 p. m., Saturday. Fee \$12

Continuation of Spanish e13. Open only with the consent of the instructor.

Spanish e16—Advanced composition and Spanish conversational practice. Credit I, IV. 3 points. Mr. AGRAMONTE
4:30-5:45 p. m., Monday and Thursday. Fee \$18

The attention of students in Romance languages is called to the evening classes in Spoken language described in a separate bulletin.

#### SECRETARIAL CORRESPONDENCE

Secretarial correspondence e2-Letter writing. 3 points. Fee \$18 \*Section 1-4:30-5:45 p. m., Monday and Thursday. Miss Hull Section 2-7-8:15 p.m., Monday and Thursday. Dr. Scarborough Prerequisite: English eA1-A2 or its equivalent in collegiate composition training.

#### SECRETARIAL STUDIES

The University offers through its School of Business and the Department of Extension Teaching courses in secretarial studies. In Extension Teaching these normally require two years.

A special circular will be sent upon application to the Secretary of Columbia University.

#### SLAVONIC

Slavonic e102—The elements of the Russian language with instruction in reading, writing and speaking. Credit II. 3 points. Professor PRINCE

4-5:40 p. m., Friday. Fee \$18

A course for beginners.

Slavonic e104—The history of the Eastern question. Lectures and conferences. Credit II. 3 points. Mr. KALENDERIAN

7:30-9:10 p. m., Tuesday. Fee \$18

Slavonic e108—Elementary commercial Russian. Credit II. 3 points. Mr. ANDREVEVSKY

8:20-9:35 p. m., Tuesday and Friday. Fee \$18

Practical introduction to the Russian language with a special view to commercial use. Reading, exposition of the syntax and exercises in commercial correspondence.

Slavonic e110-Advanced commercial Russian. Credit II. 3 points. Mr. ANDREVEVSKY

7-8:15 p. m., Tuesday and Friday. Fee \$18

Russian conversation and written exercises, especially on commercial topics, with selected readings.

#### SOCIOLOGY

#### Sociology

Sociology e52-Practical sociology: social conditions in the United States. Lectures and readings. Credit I, IV. 2 points. Fee \$12. Mr. SMITH Section 1-4:10-5 p. m., Monday and Wednesday

Section 2-7-8:40 p. m., Wednesday

Sociology e52a—Laboratory work in connection with Course e52. I point, Fee \$6. Mr. SMITH

Section 1-5:10-6 p. m., Monday

Section 2-8:40-9:30 p. m., Wednesday

Sociology e142—Social problems: social betterment. Lectures, readings and discussions. Credit II, IV. 3 points. Mr. Shenton 7:40-9:30 p. m., Wednesday. Fee \$18

Sociology e144—Social institutions: institutions of constituent society. Lectures, readings, discussions and exercises. Credit II, IV. 3 points. Mr. Shenton

7:40-9:30 p. m., Thursday. Fee \$18

Sociology e146—Social policies: special problems of social adjustment. Lectures, readings and discussions. Credit II, IV. 3 points. Mr. THOMAS 7:40-9:30 p. m., Friday. Fee \$18

Sociology e148—Social statistics: principles and methods. Lectures, readings and laboratory exercises. Credit II. 3 points. Mr. F. W. Jones 7:40-9 p. m., Tuesday and Thursday. Fee \$18

Open only with the consent of the instructor.

Sociology e152—Social evolution. Lectures, readings and discussions. Credit II, IV. 3 points. Mr. Shenton 7:40-9:30 p. m., Monday. Fee \$18

\* Sociology e316—Seminar. Discussions, research and thesis preparation. Credit II. 3 points. Mr. Shenton 7:40-9:30 p. m., Tuesday. Fee \$18
Open only with the consent of the instructor.

Social Science: Special Courses

Social science e132—Practical penal problems. Lectures, discussions and reports of first-hand investigations. Credit II. 3 points. Fee \$18. Dr. Whitin Section 1—9-11 a. m., Saturday

Section 1—9-11 a. m., Saturday Section 2—8-10 p. m., Monday Laboratory by special assignment.

#### STENOGRAPHY AND TYPEWRITING

#### Isaac Pitman System

The morning, afternoon, and evening courses described below are planned for students who contemplate performing secretarial duties and for teachers and others who desire a thorough and practical knowledge of stenography and typewriting. A class for those who have no knowledge of the subjects is started at the beginning of each Session.

In addition to a careful presentation of the principles of shorthand and typewriting, instruction is also given in the following: Secretarial and stenographic duties, common business forms, practical information for typists, the method of displaying the subject matter of a letter and its different parts and forms, the methods of teaching shorthand and typewriting, the cutting of stencils, the operation of the mimeograph, the different parts of the typewriter, its care and repair, the common business abbreviations, the handling of the telephone, information about the mails, the preparation of outgoing and incoming mail, the writing of telegrams and cablegrams, shipping and the papers involved, the common remittance forms, the method of taking dictation, the meeting of office callers, office reference books, etc. The work is carried on as nearly like that of a business office as is possible to be done in a classroom. The touch method is taught in all typewriting classes.

Before receiving final credit for the second Session in stenography and typewriting, students must complete a week of practice work in the office of the Director.

Students registered in all stenography classes must pass an examination in elementary English, including grammar, composition, spelling, and punctuation, before receiving credit for the course. Columbia University is in possession of a shorthand library consisting of 1,200 volumes which are at the disposal of students.

The courses in stenography and typewriting are under the general supervision of Mr. William E. Harned, Room 509 Journalism.

#### Morning Courses

The morning courses are completed in one college year of thirty weeks. Students completing the courses are able to write shorthand at the rate of one hundred and twenty-five words a minute, and to transcribe their notes on the typewriter at the rate of thirty words a minute.

In order to obtain the best results, students who register for stenography are expected to take the course in typewriting which corresponds to it, as designated below.

#### Stenography e2—Elementary and intermediate. 6 points. Fee \$36

Section I—10-11 a. m. and I-2 p. m., Monday, Tuesday, Wednesday, Thursday, and Friday. Mr. HARNED

Section 2—11 a. m.-12 m. and 2-3 p. m., Monday, Tuesday, Wednesday, Thursday, and Friday. Miss Dearborn

Section 3—10-11 a. m. and 1-2 p. m., Monday, Tuesday, Wednesday, Thursday, and Friday. Mr. WRIGHT

Section 4—10-11 a. m. and 1-2 p. m., Monday, Tuesday, Wednesday, Thursday, and Friday. Mr. Beidleman

This course is planned for beginners and should be taken in conjunction with Typewriting e2.

## Typewriting e2—Elementary and intermediate. 4 points. Fee \$24

Section I—II a. m.-I2 m. and 2-3 p. m., Monday, Tuesday, Wednesday, Thursday, and Friday. Mr. HARNED

Section 2—10-11 a. m. and 1-2 p. m., Monday, Tuesday, Wednesday, Thursday, and Friday. Miss Dearborn

Section 3—9-10 a.m. and 12 m.-1 p.m., Monday, Tuesday, Wednesday, Thursday, and Friday. Mr. WRIGHT

Section 4—11-12 a. m. and 2-3 p. m., Monday, Tuesday, Wednesday, Thursday, and Friday. Mr. Beidleman

This course is planned for beginners and should be taken in conjunction with the corresponding sections of Stenography e2.

# Stenography e4—Elementary. 6 points. Mr. BRYANT

10-11 a. m. and 1-2 p. m., Monday, Tuesday, Wednesday, Thursday, and Friday. Fee \$36

This course is planned for beginners and should be taken in conjunction with Typewriting e4.

# Typewriting e4—Elementary. 4 points. Mr. BRYANT

9-10 a. m. and 12 m.-1 p. m., Monday, Tuesday, Wednesday, Thursday, and Friday. Fee \$24

This course is planned for beginners and should be taken in conjunction with Stenography e4.

# Afternoon and Evening Courses

The courses in the afternoon and evening are planned for those who can give but a portion of their time each day to the study of shorthand and typewriting. Each elementary course will be followed in the autumn by a continuation class. Students registering for stenography are urged to take the course in typewriting which corresponds to it, as designated below. After a study of both shorthand and typewriting for forty-five or sixty weeks, students are able to write shorthand at the

rate of one hundred words a minute and to transcribe their shorthand notes on the typewriter at the rate of twenty words a minute, thus enabling them to perform the usual stenographic duties in a business office.

Stenography e12—Elementary. 3 points. Mr. MILLER

5:15-6:15 p.m., Monday, Tuesday, Wednesday, Thursday, and Friday. Fee \$18

Continuation of Stenography ell of the Winter Session.

Open only with the consent of the instructor.

Typewriting e12—Elementary. 2 points. Mr. MILLER

4:15-5:15 p.m., Monday, Tuesday, Wednesday, Thursday, and Friday. Fee \$12

Continuation of Typewriting err of the Winter Session. Open only with the consent of the instructor.

Stenography e14—Elementary. 3 points. Mr. LYNAUGH

4:15-5:15 p.m., Monday, Tuesday, Wednesday, Thursday, and Friday. Fee \$18

This course is planned for beginners and should be taken in conjunction with Typewriting e14.

Typewriting e14—Elementary. 2 points. Mr. LYNAUGH

5:15-6:15~p.~m , Monday, Tuesday, Wednesday, Thursday, and Friday. Fee \$12

This course is planned for beginners.

Stenography e18—Intermediate. 6 points. Mr. CRAVER

4:15-6:15 p. m., Monday, Tuesday, Wednesday, Thursday, and Friday. Fee \$36

Stenography e20—Advanced. 3 points. Miss Dearborn

5:15-6:15 p. m., Monday, Tuesday, Wednesday, Thursday, and Friday. Fee \$18

Stenography e22—Elementary. 2 points. Mr. BRYANT

7:30-8:30 p. m., Monday, Wednesday, and Friday. Fee \$12

Continuation of Stenography e21 of the Winter Session. Open only with the consent of the instructor.

Typewriting e22—Elementary. 2 points. Mr. BRYANT

8:30-9:30 p. m., Monday, Wednesday, and Friday. Fee \$12

Continuation of Typewriting e21 of the Winter Session. Open only with the consent of the instructor.

Stenography e24—Elementary. 2 points. Mr. Beidleman

8:30-9:30 p. m., Monday, Wednesday, and Friday. Fee \$12

This course is planned for beginners and should be taken in conjunction with Typewriting e24.

Typewriting e24—Elementary. 2 points. Mr. Beidleman

7:30-8:30 p. m., Monday, Wednesday, and Friday. Fee \$12

This course is planned for beginners.

Stenography e26—Intermediate. 4 points. Mr. J. L. Hughes 7:30-9:30 p. m., Monday, Wednesday, and Friday. Fee \$24

Stenography e28—Court reporting. 3 points. Mr. KIMBALL

7:30-9:30 p. m., Tuesday and Thursday. Fee \$18

#### **TYPOGRAPHY**

Typography e2—Proof-reading and the preparation of manuscript. 2 points. Spring Session. Miss Rose

7:40-9:10 p. m., Wednesday. Fee \$12

A brief outline of the history of typography will be followed by a practical explanation of present-day printing methods and a description of the different systems of hand and machine type-setting employed in modern establishments. Detailed instruction will be given in the preparation of manuscript for the compositor and in proof-reading. The work in proof-reading will include drill in the actual correction and revision of galley, page, and final proofs, with special attention to spelling, correct division of words, and uniformity in punctuation, capitalization, abbreviations, and minor matters of style. The work is planned to be of special value to authors, editors, secretarial students, and others who may be called upon to prepare manuscript for the printer.

#### **ZOOLOGY**

Zoology e2a—Elementary biology and zoology. Lectures and laboratory. Credit I, IV. 2 points. Professor McGregor and Dr. Packard

1:30-2:30 p.m., Saturday; laboratory, 2:30-4:20 p.m., Saturday. Fee \$12

Prerequisite: Natural science A, or elementary chemistry or physics.

Open only with the consent of the instructors.

#### PRACTICAL ARTS

# Officers of Administration for Extension Teaching in the School of Practical Arts

James Earl Russell, LL.D. . . . . . Dean of Teachers College Maurice A. Bigelow, Ph.D. . . . Director of School of Practical Arts Clifford B. Upton, A.M. . . . . . Secretary of Teachers College Bessie Carroll . . . Secretary to the Director of School of Practical Arts Jessica Bingham Reed . . . Assistant to the Secretary of Teachers College

The School of Practical Arts of Teachers College, in cooperation with the University Department of Extension Teaching, offers certain courses of instruction to qualified students who have not matriculated in any part of Columbia University as candidates for degrees. Such non-matriculated students will be admitted only to Practical Arts classes which are designated e (extension) or esp (extension special). The permission of the departments concerned must be obtained before registering for extension courses marked with \* (e.g., \*Cookery e2). Permission of departments is not required for admission to extension special courses.

Practical Arts extension courses which are announced as having Credit IV may be credited towards the Bachelor of Science degree if satisfactorily completed by non-matriculated students who afterward matriculate in the School of Practical Arts. The possible credit in points is stated in the description of courses.

Practical Arts extension special courses (marked esp; e.g., Cookery esp 42) are intended for popular instruction and cannot be credited towards degrees or entrance requirements.

The extension courses in practical arts are not open to women under twenty-one years of age who do not reside with their parents or relatives.

An extension student may not register for more than 8 points per Session in any one department of the School of Practical Arts.

Matriculated students of Teachers College or of other parts of the University who wish to register for part time programs should choose courses from the Announcement of the School of Practical Arts or from the special bulletin of Afternoon, Evening and Saturday Classos in Teachers College. The extension courses announced in this bulletin are not credited if taken by matriculated students unless they obtain in advance written approval from the Committee on Instruction.

Registration for Practical Arts Extension Courses. Students register for Practical Arts extension courses at the office of the Registrar, University Hall, Columbia University. Information concerning such courses may be obtained at Table E in the office of the Secretary of Teachers College daily 9 a. m.-12 m., and 2-4 p. m., except Saturday afternoon; and also 7-8 p. m., on the evenings when courses begin.

In case of courses marked with \* a limited number of non-matriculated or extension students whose preparation is equal to that of regular students in this course may be admitted if there are vacancies after 2 p. m. on September

25 or February 5. The instructor must be consulted before registration, and written permission obtained.

Changes of programs, such as dropping or adding courses, can be made only at the Registrar's office in University Hall, where the complete records are kept on file. Permission to add courses marked with \* must be obtained from the instructor before changing programs at the Registrar's office.

Number of students required in classes is indicated in descriptions of certain courses. Such classes may be discontinued if the required number of students are not registered before the time for the second lesson.

Limited classes. Many classes for practical work are limited as to number of students. Such classes are indicated by the letter L affixed to the course number (e.g., \*Cookery e2L). Extension students must reserve places by personal application to the clerk in charge of extension classes, Desk E, Secretary's Office, Teachers College. Reservations must be made at the time of registration. Places will not be held for students who do not report to the instructor at the first lesson. In case of withdrawal from courses which have a required minimum registration, no fees will be returned.

Students who register in the Winter Session for courses which extend throughout the year must at the beginning of the Spring Session call at the Registrar's office at University Hall, renew their registrations, and pay the tuition fees of the Spring Session.

Admission of extension students to Practical Arts classes with Credit IV will not be permitted after Saturday, February 9, unless for reasons of weight special permission for registration without credit is granted by the Director of the School of Practical Arts.

The University fee of \$5 per year is charged to all extension students who register for Practical Arts courses marked e, but not to those who take only the popular lecture courses marked esp.

Unless special dates are mentioned in the following pages, all courses in Practical Arts are on the regular schedule of the School of Practical Arts, beginning Wednesday, February 6, 1918, for the Spring Session.

Special registration hours for extension students in Practical Arts for the Spring Session are Tuesday and Wednesday, February 5 and 6, 4 to 6 p. m., and Saturday, February 9, 9 to 12.

The attertion of students is called to the fact that the numbers of courses and many details in the statement of the classes and hours are different in this section of the Announcement from those found on the preceding pages.

#### PRACTICAL SCIENCE

Laboratory ticket: Students in all laboratory courses in the School of Practical Arts are required to purchase from the Bursar of Teachers College a laboratory breakage ticket, good for all science departments, price \$2. Unused coupons are redeemable at the end of any Session.

#### Biology

\*Biology e4x—Biology for sex-education. Credit IV. I point Spring Session, when taken supplementary to any course in hygiene or biology. Open only to women. Miss STACKPOLE

5:10-6 p. m., Monday, Room 421 T. C. Fee \$6

\*Biology e52—Biological nature-study. Lectures, laboratory work, field work and reading. Credit IV. 2 points. Professor BROADHURST and Miss STACKPOLE 3:10-5 p. m., Monday and Friday, Room 423 T. C. Fee \$12

#### Chemistry

(For general chemistry, see p. 13)

\* P. A. Chemistry e3—Brief course for beginners in household arts. Credit IV. 4 points. Fee \$24. Miss Francis

Section II-9-11:50 a. m., Tuesday and Thursday

\* P. A. Chemistry e25—Food industries. Lectures, readings and demonstrations, varied with excursions to manufacturing establishments and reports on the processes inspected. Credit IV. 3 points. Fee \$18. Professor Vulté and Miss Vanderbilt

Section II-10-11:50 a.m., Tuesday and Thursday

Section IV-10-11:50 a. m., Monday and Friday

Room 400 T. C.

Prerequisite or parallel: A course in general chemistry.

\* P. A. Chemistry e31L—Household and organic chemistry. Lectures and laboratory work. Credit IV. 4 points. Fee \$24. Professor Vulte, Miss Vanderbilt, and Mrs. McGowan

Section II-9-11:50 a. m.

Section VI-9-11:50 a. m., Wednesday and 2:10-5 p. m., Friday

Limited sections. Room 405 H. A.

Prerequisite: A course in general chemistry equivalent to Chemistry eAI-A2. Chemistry 25 is recommended.

\* P. A. Chemistry e31A. Credit IV. 4 points. A modification of Chemistry 31 for students in household administration and others desiring a general survey of household chemistry and physics. Miss Francis

2:10-5 p. m., Monday and Wednesday, Room 405 H. A. Fee \$24

Prerequisite: Chemistry e3. This course does not admit to more advanced courses in chemistry unless the student has completed the equivalent of Chemistry eA1-A2.

#### FINE ARTS

#### Art Appreciation and History

\*Fine arts e70—Art appreciation. History of art. Lectures and required reading. Credit IV. 2 points. Professor Dow

4:10-5:30 p. m., Tuesday. Horace Mann Auditorium. Fee \$12

#### Art Structure

Fine arts e1—Art structure A. For teachers, designers, illustrators, craftsmen, and painters. Lectures and studio work. 3 points. Fee \$18. Professors Dow and Cornell, and Miss Tannahill

Section II-2:10-5 p. m., Tuesday and Thursday, Room 430 Macy

\*Fine arts e2—Art structure B. Continuation of Fine arts 1. Lectures and studio work. Credit IV. 3 points. Fee \$18. Professors Dow and CORNELL, and Miss TANNAHILL

An evening class will be organized for Monday, Wednesday, and Friday evenings, 8-10, if twenty-five students apply

Room 430 Macy

Prerequisite: Fine arts 1. Design or drawing in other schools cannot be accepted as equivalent of Fine arts 1 or 2.

\*Fine arts e3—Freehand drawing. Credit IV. 2 points. Fee \$12. Mr. MARTIN

Wednesday. (See Fine arts e3b below.)

Fine arts e3b

Section IV. 1 point. Fee \$6

4:10-6 p. m., Wednesday

Fine arts e50—Art structure Ca. Lectures and studio work. 1½ points. Professor Dow and Miss TANNAHILL

9-11:50 a. m., Saturday. Room 430 Macy. Fee \$9

Three hours outside work per week

Prerequisite: Fine arts 49.

\* Fine arts e26—Clay modeling. 2 points. Fee \$12. Mr. UPJOHN

Section I-3:10-5 p. m., Wednesday and Friday

Section II-2:10-4 p. m., Tuesday and Thursday

Section III-10-11:50 a. m., Tuesday and Thursday

Prerequisites: Fine arts 1, 2, and 25.

\*Fine arts e54A—Drawing and painting. Credit IV. 2 points. Fee \$12. Mr. Martin

Section I-9-10:50 a.m., Tuesday and Thursday

Section II-2:10-4 p. m., Wednesday and Friday

Prerequisite: Fine arts 3 or equivalent.

\* Fine arts e84—Painting. 4 points. Mr. MARTIN

9-11:50 a.m., Monday, Wednesday, and Friday. Room 426 Macy. Fee \$24 Prerequisites: Fine arts 51-52, 53-54 and 83 or equivalents.

# Household Design and Decoration

\*Fine arts e11—Household design, elementary. Studio work. Credit IV. 3 points. Fee \$18. Professor Warner, Mr. Meeker, and Mrs. Brown Section II—2:10-5 p. m., Tuesday and Thursday Room 505 H. A.

Fine arts e58—Furniture design. 1½ points. Professor Warner 9-11:50 a.m., Saturday, Room 505 H.A. Fee \$9

Prerequisite: Fine arts 1 and 2 and 57, and Drawing 3 and 4 or their equivalents.

\*Fine arts e60—Metalwork design. Credit IV. 1½ points. Professor WARNER 9-11:50 a. m., Friday, Room 505 H. A. Fee \$9

Prerequisites: Fine arts 1 and 2 and 59, and Drawing 3-4 or their equivalents.

\* Fine arts e80—Home furnishings. Illustrated lectures, readings, and reports. Credit IV. 4 points. Professor Warner

9-10:50 a. m., Tuesday and Thursday, Room 101 H. A. Fee \$24

#### Costume Design

Fine arts e21—Costume design. Credit IV. 3 points. Miss WILMOT. Fee \$18

Section II-9-11:50 a. m., Tuesday and Thursday

Prerequisites: Fine arts I or II and Clothing 33.

#### Art Industries

\*Fine arts e32—Design in the art industries. Lectures and studio work. Credit IV. 3 points. Professor Dow and Mr. Thatcher

9-11:50 a. m., Monday and Wednesday, Room 236 Macy. Fee \$18

Prerequisite: Fine arts 31.

\* Metalworking e2—Silversmithing. Credit IV. 2 points. Mr. Thatcher 9–10:50 a. m., Tuesday and Thursday. Fee \$12

Prerequisite: Metalworking 1. Students should elect Fine arts 2 parallel, and if possible Fine arts 31-32.

\* Metalworking e6—Jewelry. Shopwork. Credit IV. 2 points. Fee \$12. Mr. Thatcher

Section I-2:10-4 p. m., Monday and Wednesday

Section II-4:10-6 p. m., Monday and Wednesday

Room 243 Macy

Prerequisites for Sections I and II: Metalworking I, 2 and 5; and a design course, which may be taken parallel.

#### Art Photography

\* Fine arts e8—Art photography I. Lectures and laboratory work. Credit IV. 2 points. Mr. White

4:10-6 p. m., Wednesday, and 9-10:50 a. m., Saturday, Room 325 T. C. Extra hours desirable but optional. Special fee \$18. Not charged at \$6 per point. Begins February 9. Requires ten students

Recommended preparatory: Fine arts 1, 2, and 7.

\*Fine arts e38—Art photography II. Lectures and laboratory work. Credit IV. 2 points. Mr. White

4:10-6 p. m., Thursday, and 9-10:50 a. m., Saturday, Room 325 T. C. Extra hours desirable but optional. Special fee \$18. Not charged at \$6 per point. Begins February 9. Requires ten students

Prerequisite: Art photography I and Fine arts 37, or equivalent.

#### Mechanical Drawing

Certain specially applied courses in mechanical drawing offered in the School of Practical Arts are open to Extension students who have completed the courses described in the annual Announcement. See the *Announcement of the School of Practical Arts* and consult the Director of that School.

Other and more advanced courses in Fine arts, described in the Announcement of the School of Practical Arts, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor Dow.

#### HOUSEHOLD ARTS

See Cookery (p. 45), Nutrition and Food Economics (p. 46), Textiles and Clothing (p. 46), Household Arts—Fine Arts (p. 43), Household Administration (p. 48).

#### Cookery

The classes in cookery meet in Rooms 201–214 Household Arts Building, Teachers College.

Costume for foods and cookery laboratories: Students are requested to wear white cotton clothing; plain skirt; tailored waist; plain white collar; no color in ties or bows of neckwear; long plain white apron with bib (for laboratory only); little if any jewelry.

Limited sections: For all 'limited' courses (indicated by L following the number, e. g., Cookery e2L) students must reserve places before completing registration. See p. 41.

· Any limited section with less than ten students may be discontinued after the first lesson.

Cookery e1—Technology of cookery. Lectures, demonstrations, and laboratory work. Credit IV. 2 points. Fee \$12. Professor Van Arsdale, Miss Stone, and Miss Monroe

Section II-I:10-2 p. m., Monday, Wednesday, and Friday

Section IV-1:10-2 p. m., Tuesday, Wednesday, and Thursday

This course is prerequisite or parallel to all courses in cookery.

Students are advised to take general chemistry and physics parallel.

\* Cookery e41L—Home cookery and table service. Lectures and laboratory work. Credit IV. 4 points. Special fee \$32. Not charged at \$6 per point. Miss Peacock and Mrs. Gunn

Section X-7-9:50 p. m., Tuesday and Thursday

Limited section. Requires ten students

Prerequisite: Cookery 3.

Prerequisite or parallel: Cookery 1, Chemistry 25, and Biology 4. Nutrition 1 is strongly recommended as a parallel. Administration 21 is also recommended.

\*Cookery e61—Lecture—Demonstrations in advanced cookery. Credit IV. 3 points. Fee \$18. Miss Shapleigh

Section II-9-11:50 a. m., Monday and Friday

Prerequisite or parallel: Cookery 1.

Prerequisite: Cookery 3 and 41, or equivalents.

\*Cookery e75L—Institutional cookery. Lectures and laboratory work. Credit IV. 4 points. Special fee \$32. Not charged at \$6 per point. Miss Mann and assistant

Section IV-7-9:50 p. m., Monday and Wednesday

Limited section. Requires ten students

Prerequisites: Cookery 1, 3, and 41.

\* Cookery e81L—Practice in demonstration cookery. 3 points. Fee \$18. Miss Barrows and Miss Shapleigh

Section II-9-11:50 a. m., Tuesday and Thursday

Limited section

Prerequisite for extension students: experience in teaching cookery.

Cookery e90—History of cookery. Fifteen lectures. Credit IV. 1 point supplementary to another course in household arts. Fee \$6. Miss Shapleigh Section II—1:10-2 p. m., Friday

Cookery e42L—Elementary cookery. No credit. Special fee \$30. Not charged at \$6 per point

Section II—9-II:50 a. m., Tuesday and Thursday. Begins February 12 Room 206 H. A.

Limited section. Requires ten students

Cookery e44L—Laboratory course in advanced cookery. No credit. Special fee \$36. Not charged at \$6 per point. Mrs. Gunn

Section II-2:10-5 p. m., Tuesday and Thursday. Begins February 12

Limited section. Requires ten students

Prerequisite: Cookery e42 or equivalent.

Other and more advanced courses in Cookery, described in the Announcement of the School of Practical Arts, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor Van Arsdale.

#### Nutrition and Food Economics

\* Nutrition e1—Elementary food economics. Lectures, recitations, and laboratory work. Credit IV. 2 points. Fee \$12. Miss McCormick, Miss Latzer, and Professor Sherman

Section II-9-11:50 a. m., Saturday

Rooms 400 Teachers College, and 401 H. A.

Prerequisites: An elementary knowledge of cookery equivalent to Cookery 3. Students who have not previously studied chemistry are strongly advised to take Chemistry I or 3 in the Winter Session as preparation for this course in the Spring Session.

#### Textiles and Clothing

Limited sections: For all courses announced as 'limited sections' students must reserve places at the time of registration. See p. 41.

\*Textiles e31a—Textiles. Lectures. Credit IV. 2 points. Fee \$12. Professor Fales

Section II-10-10:50 a. m., Tuesday and Thursday

This course may be elected separately but is prerequisite to the other parts of the course.

\*Textiles e31b—Textile fabrics. Lectures and laboratory work. Credit IV. I point supplementary to other textile work. Fee \$6. Professor Fales

Section II—10-11:50 a. m., Wednesday

Room 302 H. A.

Prerequisite: Textiles 31a.

\* Textiles e31c—Textile chemistry. Laboratory work. Credit IV. I point supplementary to other textile or clothing work. Fee \$6. Mrs. McGowan

Section II—2:10-4 p. m., Thursday Section IV—10-11:50 a. m., Wednesday Room 509 H. A.

Limited sections

Prerequisites: Textiles 31a, Chemistry 3 or its equivalent.

Textile manufacturing—See under Industrial arts, p. 50.

\* Clothing e33—History of costume. Lectures. Credit IV. 2 points. Fee \$12. Professor FALES

Section II—II-II:50 a. m., Tuesday and Thursday

\*Clothing e5L—Elementary clothing and handwork. For teachers. Laboratory work. Credit IV. 4 points. Fee \$24. Miss White and Miss Evans Section VI—2:10-5 p. m., Tuesday and Thursday

Limited section. Requires ten students. Room 301 H.A.

Students provide required material.

This course, or its equivalent, is prerequisite to all dressmaking courses.

Parallel or prerequisite: Fine arts 1 or 11.

\*Clothing e15L—Drafting and dress design. For teachers. Laboratory work. Credit IV. 3 points. Fee \$18. Miss BALDT

Section II-2:10-5 p. m., Monday and Friday

Limited section. Requires ten students. Room 304 H. A.

Students provide required materials; approximate cost, \$5. This course is prerequisite to all other dressmaking courses.

\*Clothing e35L—Dressmaking, elementary. For teachers. Laboratory work. Credit IV. 4 points. Fee \$24. Miss Baldt

Section II-9-11:50 a. m., Tuesday and Thursday

Room 304 H. A.

Limited section

Students provide required material; approximate cost, \$25.

Prerequisites: Clothing 5, 15, Fine arts 1 or 11.

\*Clothing e45—Dress design, advanced. For teachers. Laboratory work. Credit IV. 3 points. Fee \$18. Miss Wilmot, Mrs. Nelson, and Miss Evans

Section IV-2:10-5 p. m., Monday and Friday

Limited section. Requires ten students. Room 305 H. A.

Students provide required materials; approximate cost, \$5.

Prerequisites: Clothing 15 and Fine arts 1.

\*Clothing e65—Embroidery. For teachers. Laboratory work. Credit IV. 3 points. Fee \$18. Miss White

2:10-5 p. m., Tuesday and Thursday

Room 301 H. A.

\*Clothing e27—Millinery, elementary. For teachers. Laboratory work. Credit IV. 3 points. Fee \$18. Mrs. Tobey

Section VI-9-11:50 a. m., Monday and Friday

Room 302 H. A.

#### Courses for Home Workers

Clothing e1L—Sewing, elementary. Laboratory work. Fifteen three-hour lessons. No credit. Special fee \$12. Miss Evans

Section II—9-11:50 a. m., Wednesday. Begins February 13

Room 301 H. A.

Limited section. Requires fourteen students

Students provide required materials.

Clothing e31L—Dressmaking. Laboratory work. Twenty-three two-hour lessons. No credit. Fee \$12. Mrs. Nelson and Miss Evans

Section II—10-11:50 a. m., Monday and Friday. Begins February 11

2:10-4 p. m., Tuesday and Thursday. Begins February 12

Section VI—2:10-4 p. m., Monday and Friday. Begins February 11 Room 500 H. A.

Limited sections. Each section requires fourteen students

Students provide materials.

Clothing e71L—Dressmaking, advanced. Fifteen three-hour lessons. No credit. Fee \$12. Mrs. Nelson

Section II-2:10-5 p. m., Wednesday. Begins February 13

Room 509 H. A.

Requires fourteen students

Students provide required materials.

Clothing e7L—Millinery, elementary. Laboratory work. Twenty-three two-hour lessons. No credit. Fee \$12. Mrs. Sмітн

Section II-10-11:50 a. m., Monday and Friday. Begins February 11

Section IV-2:10-4 p. m., Monday and Friday. Begins February 11

Room 311 H. A.

Each section requires fourteen students

Students provide materials.

Clothing e17L—Millinery, advanced. Laboratory work. Twenty-three two-hour lessons. No credit. Fee \$12. Mrs. Nelson

2:10-4 p. m., Tuesday and Thursday. Begins February 12

Room 311 H. A.

Requires fourteen students

Prerequisite: Clothing e7. Students provide required materials.

Other and more advanced courses in clothing, described in the Announcement of the School of Practical Arts, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor FALES.

#### HOUSEHOLD ADMINISTRATION

\* Administration e1L—Housewifery. Discussions, observation, and practical work. Credit IV. 2 points. Fee \$12. Miss Balderston and Miss Mann

Section IV—2:10-5 p. m., Wednesday Section VI—9-11:50 a. m., Friday

Room 53 H. A.

Limited sections

\* Administration e2L—Household management. Credit IV. 2 points. Fee \$12. Miss Fisher

Section II-2:10-4 p. m., Monday

Limited section. Room 53 H. A.

Prerequisite: Administration 1.

\* Administration e11L—Domestic laundering. Discussions, demonstrations, and laboratory work. Credit IV. 2 points. Fee \$12. Miss BALDERSTON and assistant

Section II-2:10-5 p. m., Monday

Rooms 53 and 57 H. A.

Limited section

Recommended preparatory: Chemistry 3.

\* Administration e21-Marketing. Credit IV. 2 points. Fee \$12

Section IV-10-11:50 a. m., Wednesday.

Requires fifteen students

\* Household economics e79—Household economic science. Credit IV. 2 points. Fee \$12. Professor Andrews

Section II-3:10-4 p. m., Tuesday and Thursday

Section IV-4:10-5 p. m., Monday and Wednesday

Section II gives special emphasis to the budgets of industrial and rural families. Section IV gives special attention to family budgets from \$1,500 up.

\* Household economics e81—Household accounts. Credit IV. 2 points. Professor Andrews

2:10-4 p. m., Friday. Fee \$12

Gives special attention to household accounts, for the teacher, house manager, and consultant.

Other and more advanced courses in administration, described in the *Announcement of the School of Practical Arts*, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor Gunther.

#### INDUSTRIAL ARTS

#### Industrial Arts for Teachers

Students who take shopwork in Industrial arts will be required to purchase from the Bursar of Teachers College a 'laboratory ticket'. price \$2, the coupons of which are to be used in paying for special materials required for individual use and for damage to or loss of apparatus in any shops, laboratories, or studios of Teachers College. Unused coupons are redeemable at the end of any Session.

#### Art Industries

For courses in hammered metal, silversmithing, and jewelry, see under Fine arts

#### Industrial Arts Education

\*Industrial arts e144—Industrial arts for the elementary grades. Credit IV. 2 points. Fee \$12. Miss Patrick

Section I-2:10-4 p. m., Monday and Wednesday

Section III-3:10-5 p. m., Tuesday and Thursday

Section IV-9-12:20 a. m., Saturday

Industrial arts e144A—Experimental problems in industrial arts for the elementary grades. Discussions, reports, and laboratory experiments. 2 points. Fee \$12. Miss Patrick

7:30-9:30 p. m., Monday. Room 119 Macy. Begins February 11

Registration only after consultation with the instructor.

Prerequisite: Education 143 or equivalent.

\* Industrial arts e146—Teaching industrial arts in elementary schools. Credit IV. 2 points. Professor Bonser

3:10-4 p. m., Tuesday and Thursday. Fee \$12

For full description see Announcement of School of Practical Arts.

#### Textile Industries

Woolens. A series of twelve lectures will be given, beginning February 12, if twenty-five auditors register before the second lesson. A special circular may be obtained from the Secretary of Teachers College. Fee \$10.

Silks, ribbons, and pile fabrics. A series of twelve lectures will be given, beginning February 11, if twenty-five auditors register before the second lesson. A special circular may be obtained from the Secretary of Teachers College. Fee \$10.

Cottons and cotton mixtures. A series of twelve lectures will be given, beginning February 14, if twenty-five auditors register before the second lesson. A special circular may be obtained from the Secretary of Teachers College. Fee \$10.

Other and more advanced courses in Industrial arts, described in the *Announcement of the School of Practical Arts*, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to the instructor.

#### Mathematics

\* P. A. Mathematics e32—Industrial mathematics. Credit IV. 2 points. Mr. Breckenridge

5:10-6 p. m., Tuesday and Thursday. Fee \$12

Prerequisite: College entrance mathematics or an equivalent experience in mechanic arts.

#### MUSIC

#### General Art of Music

\*P. A. Music e26—Sight singing. Credit IV. 2 points. Fee \$12. Mr. Kraft

3:10-4 p. m., Monday, Wednesday, and Friday, Room 118 T. C.

\* P. A. Music e14—Tone thinking. Music dictation and reading, including harmonic and melodic material. Credit IV. 2 points. Mr. Kraft

4:10-5 p. m., Monday, Wednesday, and Friday, Room 118 T. C. Fee \$12

Prerequisite: Either Music 25–26 or the ability to write from hearing a simple phrase of music.

\* P. A. Music e66—Chorus singing and conducting. Credit IV. 2 points. Mr. Kraft

11-11:50 a.m., Tuesday, Wednesday, and Thursday, Room 118 T.C. Fee \$12

#### Technical Music Courses

\* P. A. Music e16—Voice: First year. Individual work in groups limited to four. Credit IV. 2 points. Special fee for Sections II and III, \$25. Not charged at \$6 per point

Section II—Room 605 H. A. Miss DASCHBACH

In this section special groups are formed for kindergartners, practice being given in the music they are required to use. Hours to be arranged

Section III-Room 605 H. A. Hours to be arranged. Mr. Jolliffe

- \*P. A. Music e36, e56, e76—Advanced courses in voice. Hours to be arranged. Given in groups; under same conditions as to credit, hours, and fees as for the same instructors in Music e16. Consult Professor Farnsworth
- \* P. A. Music e28—Piano: First year. Credit IV. 2 points. Requires at least six hours' practice a week. Special fee \$25. Not charged at \$6 per point. Miss Zerbe
  - (a) Individual work in groups limited to four. Once a week
  - (b) Class lessons: once a week, combining all groups
- 4:10-5 p. m., Tuesday, and other hours to be arranged with the instructor, Miss ZERBE

Room 118 T.C.

\*P. A. Music e38, e58, e68—Advanced courses in piano. Hours to be arranged. Given in groups; under same conditions as to credit, hours, and fees as for the same instructors in Music 18. Consult Professor Farnsworth

Piano practice—Fee for use of pianos by students registered for eight or more points of music in a Session is \$4 per Session for six hours or less per week. Arrange hours at the office of Practical Arts after February 14

\*P. A. Music e20—Organ. Credit IV. 2 points. Special fee, \$35. Not charged at \$6 per point. Mr. Fowler

Individual work in groups. Requires three students to form a group; limited to four. Work and hours to be arranged. Consult Professor FARNSWORTH

Prerequisite: Elementary piano-playing.

- \*P. A. Music e30—Organ. Credit IV. 2 points. Special fee, \$50 for each Session. Not charged at \$6 per point. Mr. LAMOND
- \*P. A. Music e40—Violin. Credit IV. 2 points. Special fee \$35. Not charged at \$6 per point. Mr. Stowell

Hours to be arranged. Room 603 H. A.

Individual work in groups limited to four. Requires three students to form a group

Other courses in music for teachers, described in the *Announcement of the School of Practical Arts*, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor Farnsworth.

#### Speech

Speech e1A—Voice and diction, introductory. Lectures, class exercises, and individual practice. Credit IV. 2 points. Fee \$12. Professor LATHAM and assistant

10-11:50 a.m., Tuesday and Thursday

Speech e4—Story-telling and reading, introductory. Lectures, practice, criticism, and recitals. Credit IV. 2 points. Fee \$12. Mrs. HALLOCK

4:10-5 p. m., Monday and Wednesday

Prerequisite: Speech e3 or equivalent.

Speech e182—Dramatization. Investigation and practical work. 2 points. Fee \$12. Professor LATHAM and others

9-11 a. m., Saturday

#### NURSING AND HEALTH

- \* Nursing e3—Physical care of infants and small children. Lectures, demonstrations, and readings. Credit IV. 2 points. Fee \$12. Dr. Kenyon Section II—3:10-5. p. m., Monday Require fifteen students
- \* Nursing e5—Elementary home nursing and first aid. Lectures, demonstrations, and laboratory practice. Credit IV. 2 points. Fee \$12. Miss Johnson Section II—2:10-5 p. m., Thursday Section IV—2:10-5 p. m., Friday
- \* Nursing e7—Occupations for invalids. Lectures and laboratory work. Credit IV. 2 points. Miss Collins

3:10-6 p. m., Wednesday. Fee \$12 Requires fifteen students

Biology e4x—Biology for sex-education. I point, when taken parallel with any course in hygiene or biology. Open only to women. Miss STACKPOLE 5:10-6 p. m., Monday. Room 421 T. C. Fee \$6

Other and more advanced courses in nursing and health, described in the Announcement of the School of Practical Arts, may, with the approval of the Director of the School, be open to non-matriculated students whose technical preparation is satisfactory to Professor NUTTING.

#### PHYSICAL EDUCATION

The following extension courses are given in the Thompson Building of Teachers College February 6, 1918, to May 15, 1918. Second half-year (Spring Session) begins February 6.

Lockers are available for women only. A deposit of twenty-five cents must be made for each locker key. This must be redeemed and gymnasium suits removed before June 6.

The swimming pool is reserved for women and children.

Gymnasium shoes must be soft-soled and without heels.

Information concerning gymnasium and swimming suits may be obtained from the Secretary of the Department of Physical Education. Special Lessons—A number of special series of lessons for women and children in gymnastics, folk and natural dancing, swimming, and corrective gymnastics will be given from February, 1918, to May, 1918, in the Thompson Building of Teachers College by the School of Practical Arts in cooperation with the University Institute of Arts and Sciences. Many of the most popular series are given in the evening. A special circular may be obtained from the Secretary of Teachers College.

\* Physical education e2—Elementary practice for women. Credit IV. I point. Fee \$6

Section I—4:10-5 p. m., Tuesday and Thursday, Room 255 Thompson Section II—5:10-6 p. m., Monday and Wednesday

\*Physical education e4—Advanced practice for women. Credit IV. I point. Fee \$6. Miss Yunck

3:10-4 p. m., Wednesday and Friday

\*Physical education e178—The dramatic game. Practice. Credit IV. 2 points. Miss Colby

4:10-5 p. m., Tuesday and Thursday, Thompson Gymnasium. Fee \$12

Physical education e186—Play and playgrounds. Lectures, required reading, and observation. 2 points. Fee \$12. Mr. HAYNES

5:10, Monday and Wednesday. Room 164 Thompson

Other courses in physical education, with numbers below 100, described in the *Announcement of the School of Practical Arts*, may be made available for specially qualified non-matriculated students who bring to the Director of the School of Practical Arts the written approval of Professor Wood.

